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ARIZONA RURAL HEALTH NEEDS ASSESSMENT

Marianne J. Remy, MPH

Rural Health Office
Department of Family and Community Medicine
University of Arizona College of Medicine
Tucson, Arizona

August, 1987

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For additional copies please contact:
Rural Health Office
3131 East 2nd Street
Tucson, Arizona 85716
(602) 626-7946

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Preface

The Rural Health Office is pleased to present the *Arizona Rural Health Needs Assessment*. The use of Zip Codes as the small area unit of analysis is a new procedure for the RHO. It facilitates integration and interpretation of data tapes, both from the U.S. Census and the Arizona Department of Health Services.

This book becomes available coincident with the second edition of *The Arizona Rural Health Provider Atlas*. Together these two documents provide a basis for health planning in rural Arizona, particularly through the Primary Care Working Partnership (P.C.W.P.) – a consortium of health agencies concerned with primary care in the state.

The *Arizona Rural Health Needs Assessment* is very much a product of the P.C.W.P. Operating under the leadership of Dr. Stan Kleiner in the Arizona Department of Health Services, the P.C.W.P. has provided much of the rationale and encouragement for publication of the *Assessment*.

The *Assessment* will be of great value to a variety of programs operated by the RHO, including the Arizona Health Provider Resources Program (A.H.P.R.) and the Arizona Area Health Education Centers Program (AzAHEC). Both are designed to help correct the maldistribution of health manpower, through recruitment and placement of providers, on the one hand, and provider education and enrichment, on the other.

I wish to take this opportunity to extend special thanks to the author, Ms. Marianne Remy, as well as to Dr. Tony Estrada and the RHO staff who supported her in this work. Finally, we are most grateful to the Federal Government for supporting much of the research and development efforts leading to publication of the *Arizona Rural Health Needs Assessment*.

Andrew W. Nichols, M.D., M.P.H.
Professor and Director
Rural Health Office
and
Arizona Area Health Education Centers Program

Acknowledgements

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Paul LaBrec, Melanie de Boer, and Laurie Deurloo from the Rural Health Office each contributed substantial amounts of time and energy in background research and the production of the report. Lynda Bergsma proof read the final text. Rena Gordon, Rural Health Office (Phoenix), created the basic presentation format that this report follows and is the author of a companion document, *Arizona Rural Health Provider Atlas* (August, 1987). This report was produced by the Division of Biomedical Communications, Arizona Health Sciences Center; Mark Pederson and Janet Ennis completed the layout and design and Dave Becker the typesetting.

Special appreciation is extended to the Arizona Primary Care Working Partnership, without which this report would not have been possible. The Arizona Primary Care Working Partnership, chaired by Stan Kleiner of the Arizona Department of Health Services, is a statewide, multi-agency consortium which has the responsibility of planning and implementing primary care activities in the state. This group facilitated the development of this assessment and will base future activities on these results.

Research for this report was supported through a cooperative agreement, CSU-04 0001-02-0, with the U.S. Department of Health and Human Services, Public Health Service.

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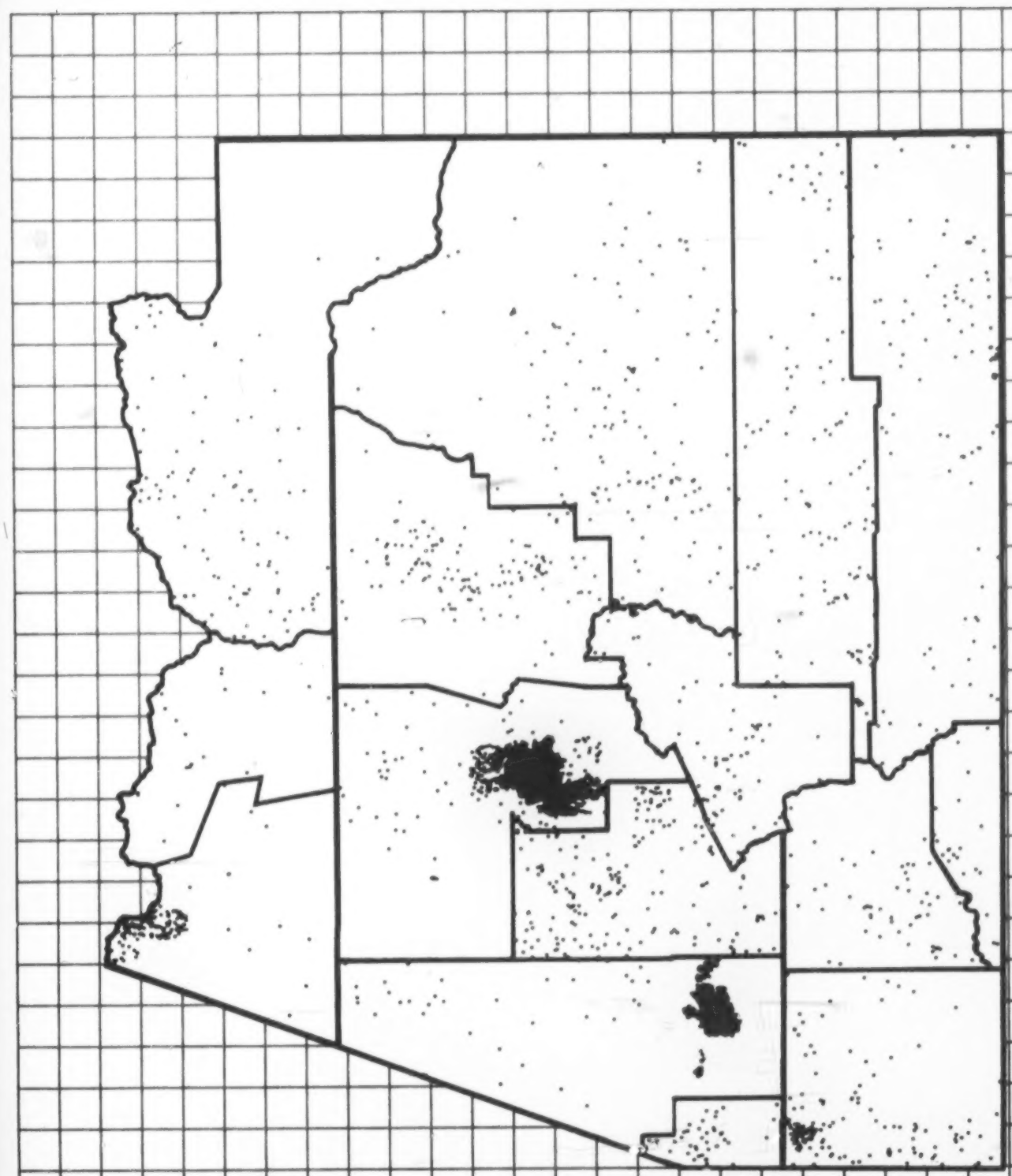

ARIZONA POPULATION DISTRIBUTION

Total Population
1 Dot = 500 Persons
Source: 1980 Census

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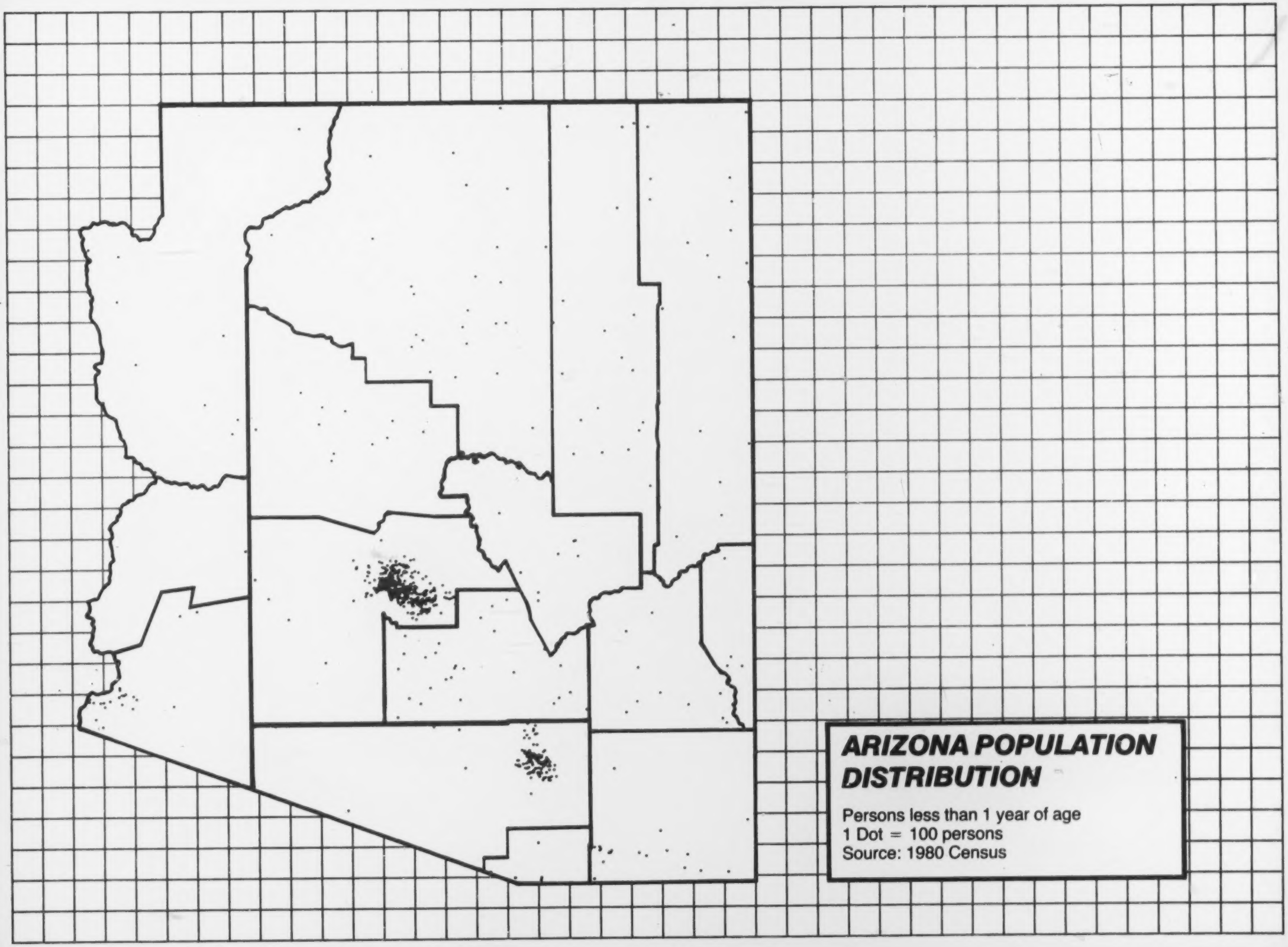


ARIZONA POPULATION DISTRIBUTION

Persons less than 1 year of age
1 Dot = 100 persons
Source: 1980 Census

Introduction

In order to assess the need for primary health care services in rural Arizona, the necessity for a statewide evaluation of indicators pertaining to relatively small geographic areas became apparent. A statewide evaluation would provide public and private planners and decision-makers with objective information, relevant to specific locales, upon which to base decisions.

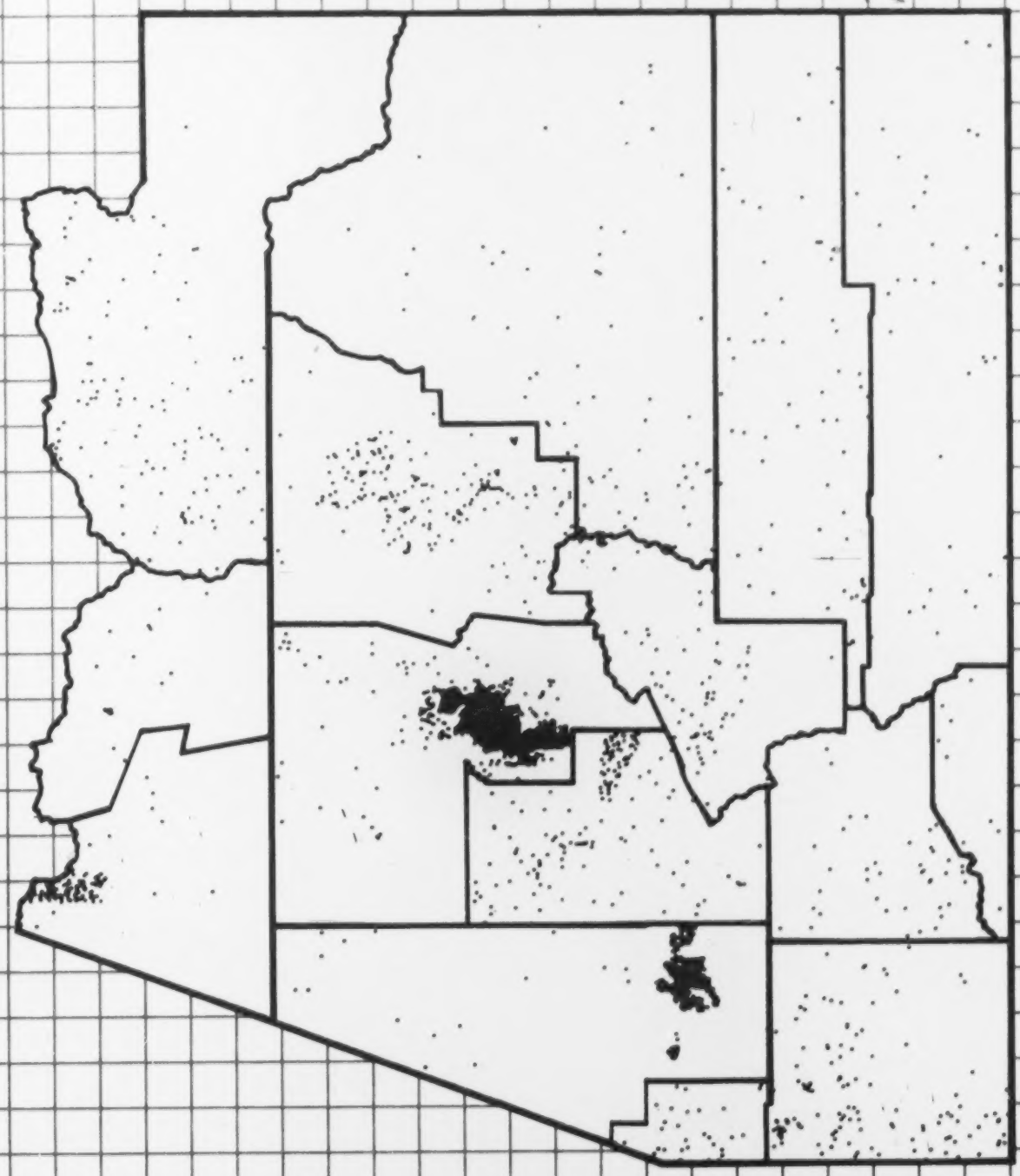
The needs assessment detailed in this report makes use of existing health, sociodemographic and health care provider information. Small area (i.e., zip code area) analysis is used to differentiate geographic populations within counties. Each of the characteristics are available in a uniform manner, by zip code area, statewide. In addition, these data will continue to be available so that longitudinal comparisons can be made. Each zip code area in rural counties is evaluated in relation to need indicators and then compared to all others statewide. The result is a ranking by zip code area which describes high, medium and low need for primary health care services.

This report anticipates that those concerned with facilitating the receipt of needed health care service by rural Arizonans will utilize this information to target relatively small geographic areas requiring intervention. In addition, a replication of this study every two years would provide a basis to evaluate interventions as well as a means to identify changing trends.

Urban vs. Rural

As noted above, this assessment is limited to rural Arizona. Although rural areas exist in Pima and Maricopa counties, these counties are not included in the report because they are designated Standard Metropolitan Statistical Areas by the U.S. Census Bureau, i.e., "urban" areas.

Throughout the report, urban and rural as well as county comparisons are made for each need indicator. These comparisons show rural counties comparing disfavorably to urban counties for all variables except the elderly population. The base of comparison for this report is geographic. An urban assessment will be completed in 1988 which will focus on special population groups within these geographic areas.



ARIZONA POPULATION DISTRIBUTION

Persons greater than 64 years of age
1 Dot = 100 persons
Source: 1980 Census

Small Area Units

The geographic units used in this report are zip codes. Zip code areas were used in Oregon by health planners to complete their "Strategic Plan for Primary Health Care in Rural Oregon" (1). These small areas are useful for three reasons. First, they are small enough to be used for community-based planning. Second, they roughly follow population patterns and natural geographic boundaries (i.e., rivers and mountain ranges) because the zip code area is the area within which mail is delivered from a single post office. Third, health and sociodemographic data are readily available by zip code.

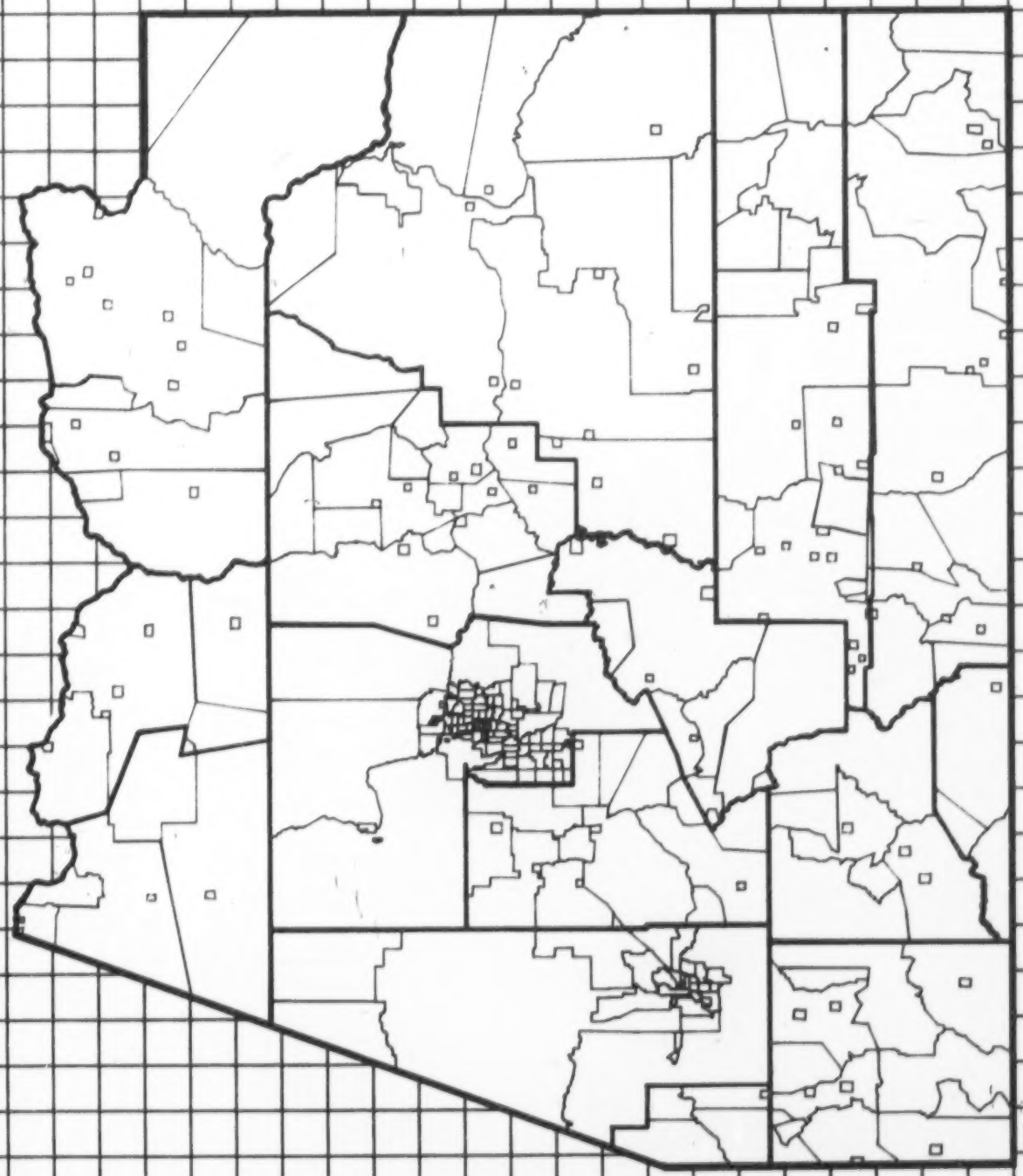
Map 4 shows the zip code areas and county boundaries in Arizona.Most zip codes contain more than one community. For the purposes of this report, zip code areas are identified by the name of the most populous community within that zip code. Appendix B lists by county the selected community name, the numerical zip code and other communities located within that zip code.

Some alteration of zip code boundaries was necessary for the purposes of this report. Vital record data (the source of health data used in this report) for Indian Reservations are grouped by county for each reservation. Since large reservations contain more than one zip code area in a given county, reservation zip codes have been grouped into new codes for these cases. These revised codes are shown in Appendix B as 1000 through 8000. Occasionally, the zip code of a particular community does not accurately describe the geographic location of that community and merely describes where mail is received. In these cases, the zip code and the corresponding data were re-assigned to more accurately reflect geography.

Data for three areas in the state are not available due to zip code changes over time. One area is in Mohave county and two are in Pinal. The population data for these is included in neighboring areas,but evaluating the data was not possible. Provider data are not affected.

ReportFormat

Three health status, three sociodemographic, two health provider and two special need indicators are used to describe health needs in rural Arizona. The health status indicators are age-adjusted mortality rate, percent of low-weight births, and percent of births to teens. The sociodemographic indicators are percent of population below poverty level, percent of population that is black, Indian and Hispanic, and percent of population that is 65 years of age and older. The health provider indicators are primary care physician (M.D. and D.O.) to population ration and mid-level provider (nurse practitioner and physician's assistant) to population ratio. The two special needs indicators are areas that are located entirely or partially on Indian Reservations and areas with an identified high density of migrant and seasonal farmworkers. Included with a discussion of the indicators is a map showing county comparisons. Individual county maps are then presented showing each zip code area rated High, Medium, or Low need for primary health care services. In addition, Appendix A is a table which displays the data values for each rural zip code area.



ARIZONA
ZIP CODE AREAS

Key-
wide line = County Boundary
narrow line = Zip Code Boundary

Deaths

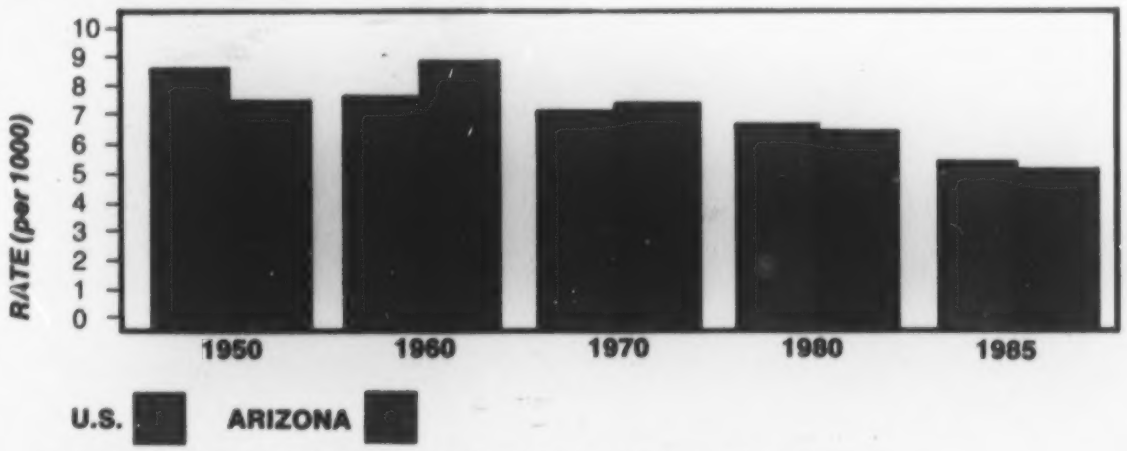
Age-adjusted death rate is one of the health status indicators used in this analysis. Since age is a primary determinant of mortality, the age composition of a given area will have a substantial impact on the overall death rate. Age-specific death rates are useful in comparing mortality among different populations but summary statistics are also useful. The age-adjusted death rate is a summary of age-specific death rates that accounts for the differences in the age distribution of a given population (2).

The number of Arizona deaths by age and by zip code of the residence of the deceased from 1981-1985 were obtained from vital record data which is a summary of death certificate information. Age-specific death rates were calculated by zip code data using population by age from the 1980 census. Using 1980 population data to calculate the age-specific death rates is problematic, but obtaining population data by zip codes for 1981-1985 was not possible. The age-specific rates were then summarized into age-adjusted death rates for each county and zip code.

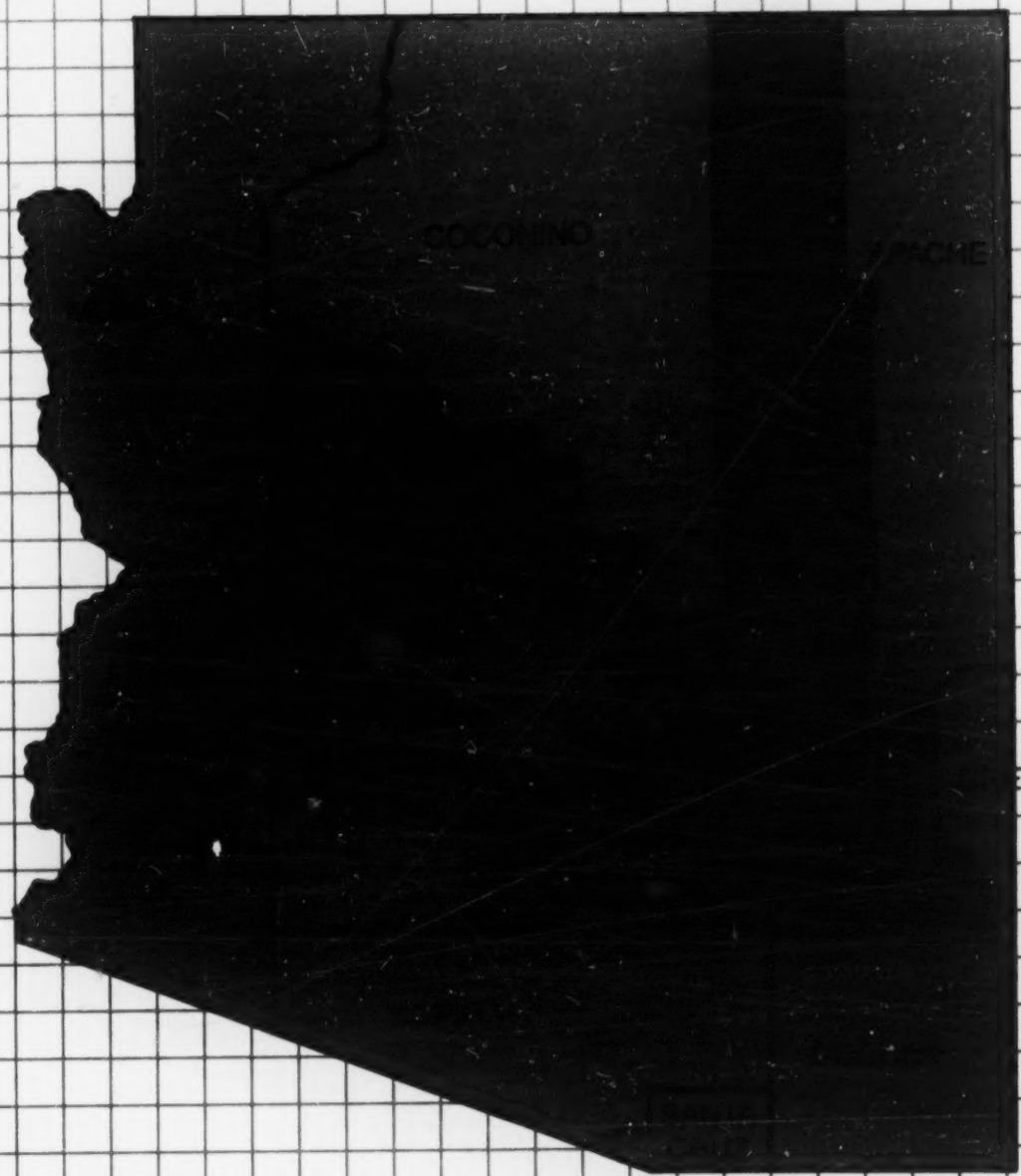
Since 1970, the age-adjusted death rate in Arizona has compared favorably to the overall U.S. rate and the rate has steadily declined for both the U.S. and Arizona (Figure 1).

The statewide five year average (1981-1985) rate for Arizona is 6.15 per thousand which is slightly lower than the overall rural rate of 6.23 and slightly higher than the overall urban rate of 6.11. Five counties (Graham, Gila, Navajo, Pinal, and Yavapai) have age-adjusted death rates higher than the rural rate, while the remaining counties have rates below the statewide rate (Map 5). Appendix A contains the five year average age-adjusted death rates for each rural zip code by county.

AGE-ADJUSTED DEATH RATES
U.S. and ARIZONA, 1950-1985



Source: Arizona Vital Records, National Center for Health Statistics



BELOW STATE RATE

ABOVE STATE RATE

ABOVE RURAL RATE

ARIZONA AGE-ADJUSTED DEATH RATES

by County (1981-1985)

RATES:
STATE = 615.02 PER 100,000
RURAL = 622.51 PER 100,000

SOURCE: ARIZONA VITAL RECORDS, 1980 CENSUS

Low Birthweight Infants

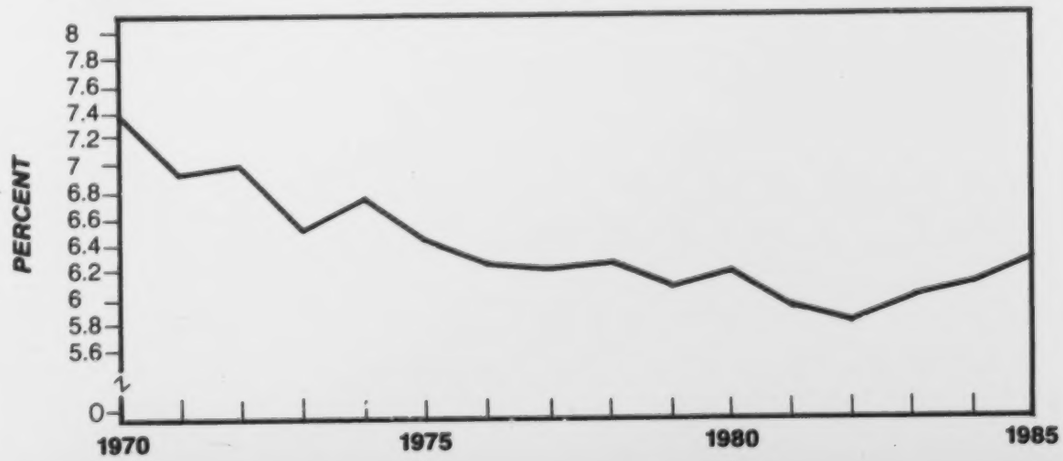
Although infant mortality is the more commonly used rate to reflect health status, infant low birthweight is used in this assessment. Infant mortality occurs rarely and is not, therefore, suitable for analysis of small areas and populations. Low birthweight occurs more frequently and is a major determinant of infant mortality and morbidity.A low birthweight infant is more likely to die in the first year of life and is more likely to have health problems such as physical and mental handicaps (3). Low birthweight is amenable to interventions such as improved maternal nutritional status and prenatal care. In Arizona during 1983-1985, a woman with no prenatal care was two and one-half times more likely to have a low birthweight infant than a woman who received five or more prenatal visits (4).

A low birthweight infant is one who weighs less than 2500 grams, or approximately five and one-half pounds, at birth. The number of low birthweight infants and total births for the years 1981-1985 by zip code of the residence of the mother were obtained from vital record data, a summary of birth certificate information. Five-year average rates of the proportion of low-weight births to total births were calculated for each county and rural zip code.

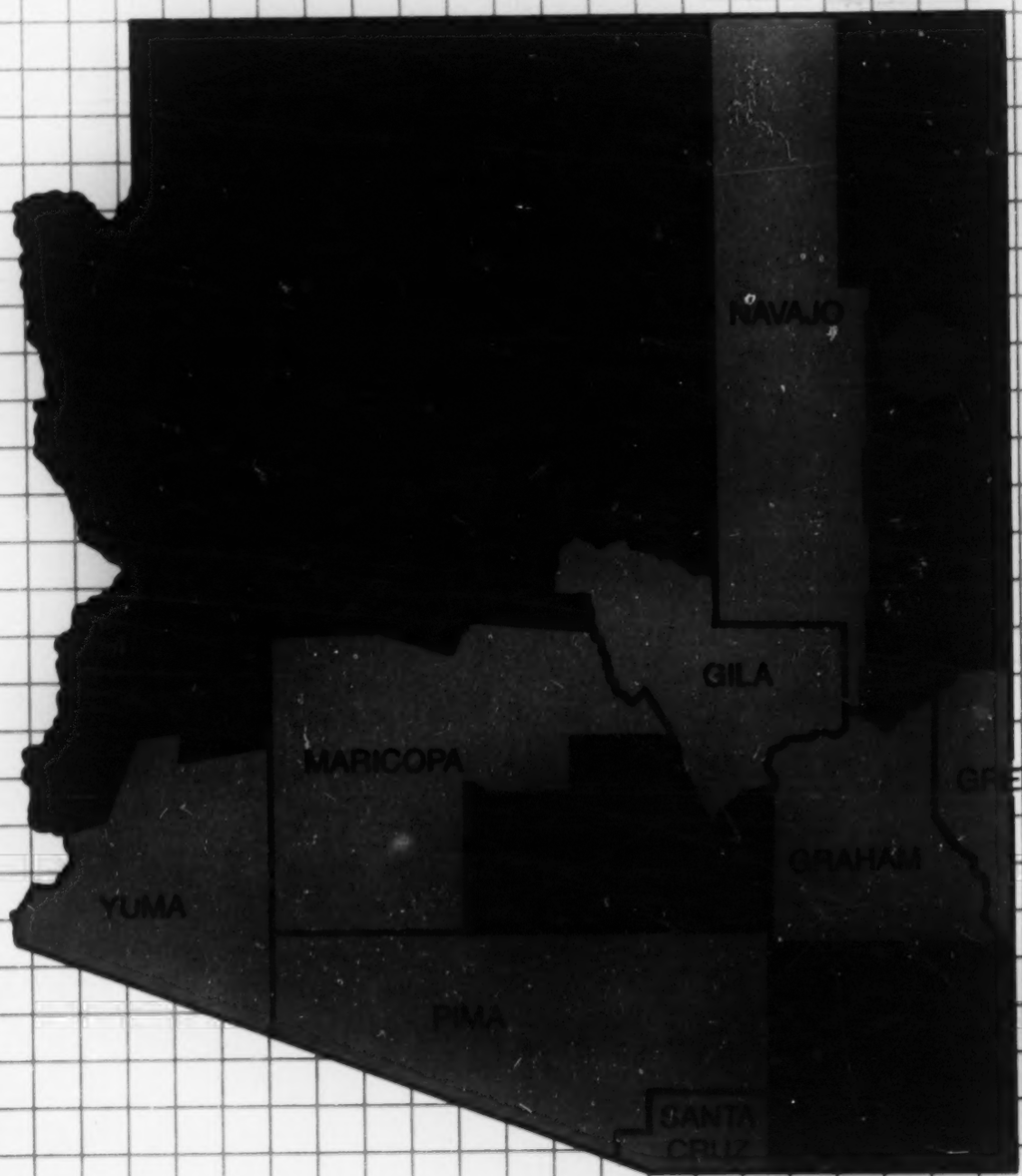
Since 1960, the low birthweight rate in Arizona has been lower than the overall U.S. rate and, until 1980, both rates have steadily declined (5). Since 1980, however, low birthweight rates in Arizona have been increasing (Figure 2). The five-year average low birthweight rate for the rural counties in Arizona is slightly higher than the rate for urban counties and the entire state, 6.2% compared to 6.0% and 6.1%. Five counties in Arizona have five-year average low birthweight rates that are higher than the rural rate. These counties are Apache, Cochise, Coconino, La Paz, Mohave, and Pinal. One county (Yavapai) has a rate that is above the statewide rate but below the rural rate (Map 6). Appendix B lists the five-year average low birthweight rate for each rural zip code by county.

ARIZONA LOW BIRTHWEIGHT RATE

1970-1985



Source: Arizona Vital Records



BELOW STATE RATE

ABOVE STATE RATE

ABOVE RURAL RATE

ARIZONA BIRTHS

Percent of Low Birth Weight
by County (1981-1985)

RATES:
STATE = 6.1%
RURAL = 6.2%

SOURCE: ARIZONA VITAL RECORDS

Births to Teenagers

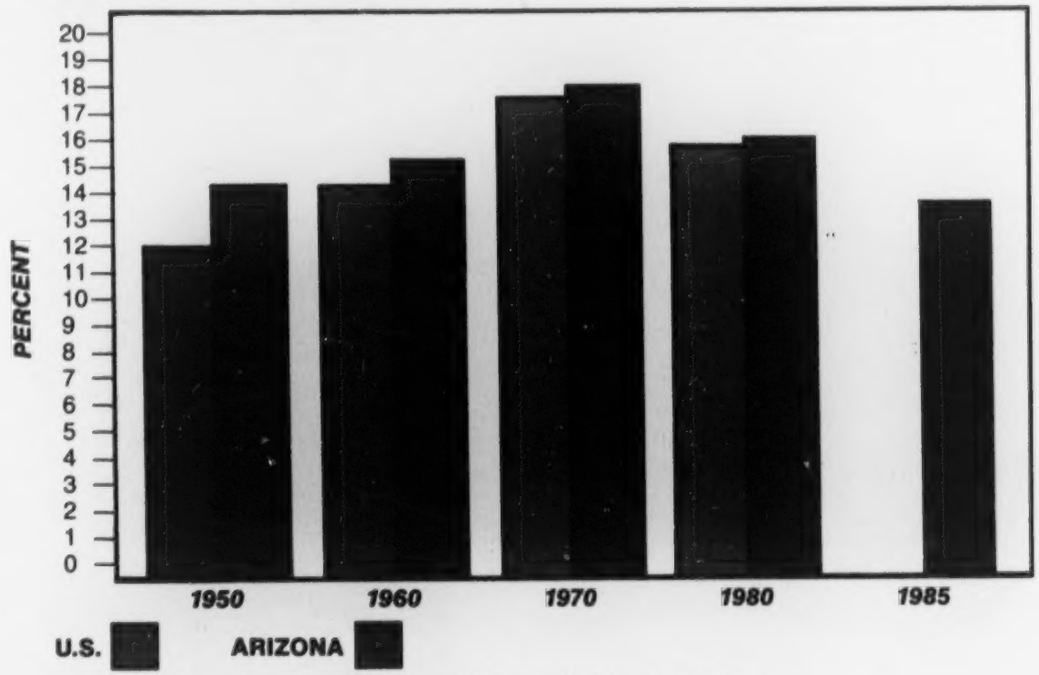
The percent of births to teens is the third health status indicator used in this assessment. Arizona statistics show that pregnant teens are more likely to receive inadequate prenatal care and have low birthweight infants than older mothers (6). In addition, women who have their first child while still a teenager are less likely to finish high school and are more likely to be supported by welfare than women who begin childbearing later in life (7). Prevention of teenage pregnancy is a common goal of primary health care systems.

The number of births to women aged 15-19 and total number of births for the years 1981-1985 by zip code were obtained from vital record data,a summary of birth certificate information. A five year average percentage of teen births to total births was calculated for each county and rural zip code in Arizona.

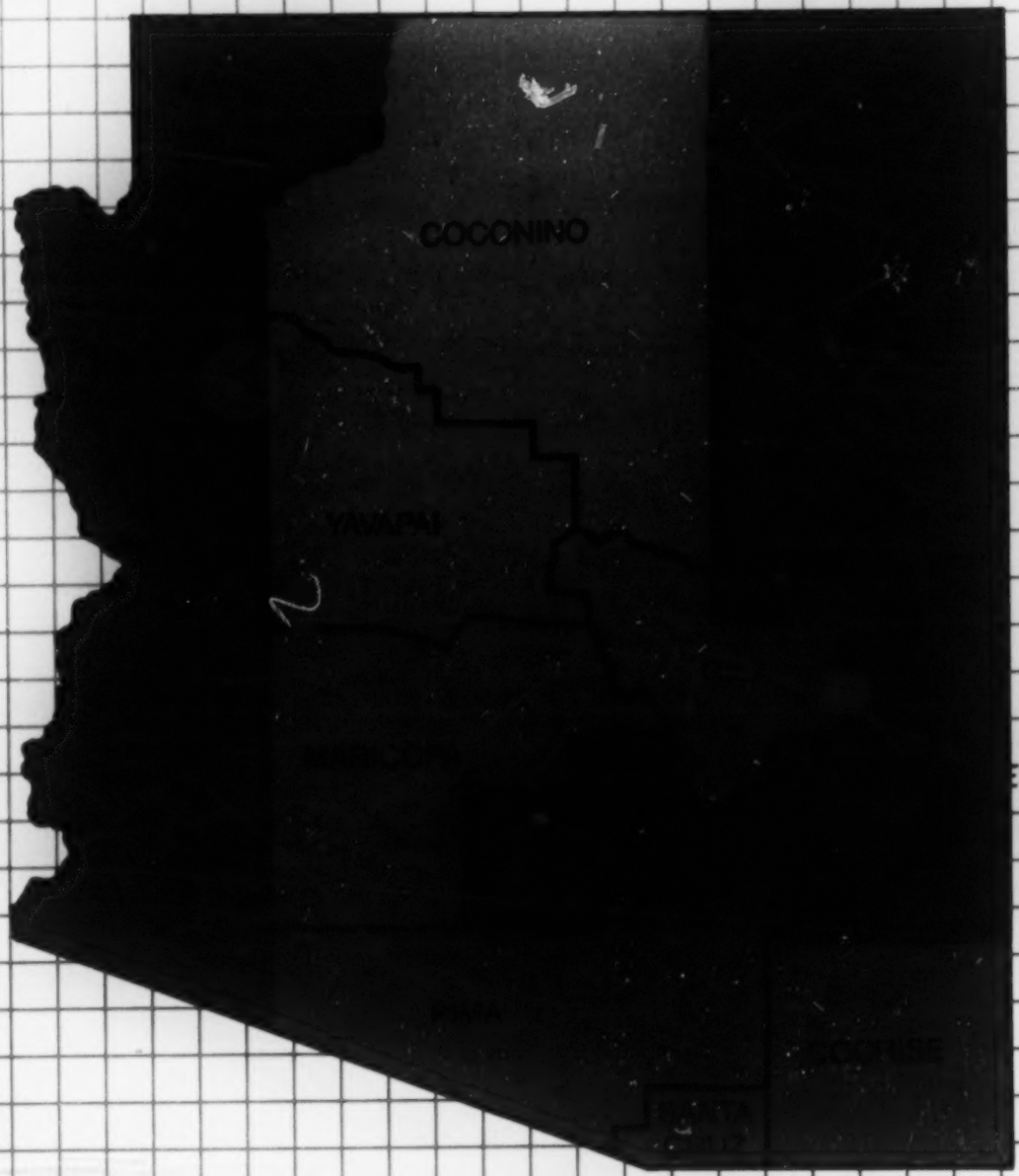
From 1950-1980, the percent of births to teens in Arizona has been slightly higher than the overall U.S. rate (e.g., in 1980 the U.S. rate was 15.6% compared to 16.0% in Arizona) and the rate in Arizona as in the U.S. has been declining (8). Figure 3 shows this trend over time in Arizona. The five year average percent of births to teens for rural Arizona is 15.5% which is higher than the urban percent of 13.9% and the statewide rate of 14.4%. In seven counties (Apache, Graham, Greenlee, La Paz, Mohave, Navajo, and Pinal) the five year average percent of births to teens is greater than the rural percent. One county (Yuma) has a rate that is greater than the statewide rate but lower than the rural rate. (Map 7) Appendix A details the percent of births to teens statistic for each county and rural zip code area in Arizona.

PERCENT OF BIRTHS TO TEENS

U.S. and ARIZONA, 1950-1985



Source: Arizona Vital Records, National Center for Health Statistics



BELOW STATE RATE

ABOVE STATE RATE

ABOVE RURAL RATE

ARIZONA BIRTHS

Percent of Teen Births by County (1981-1985)

RATES:
STATE = 14.4%
RURAL = 15.5%

SOURCE: ARIZONA VITAL RECORDS

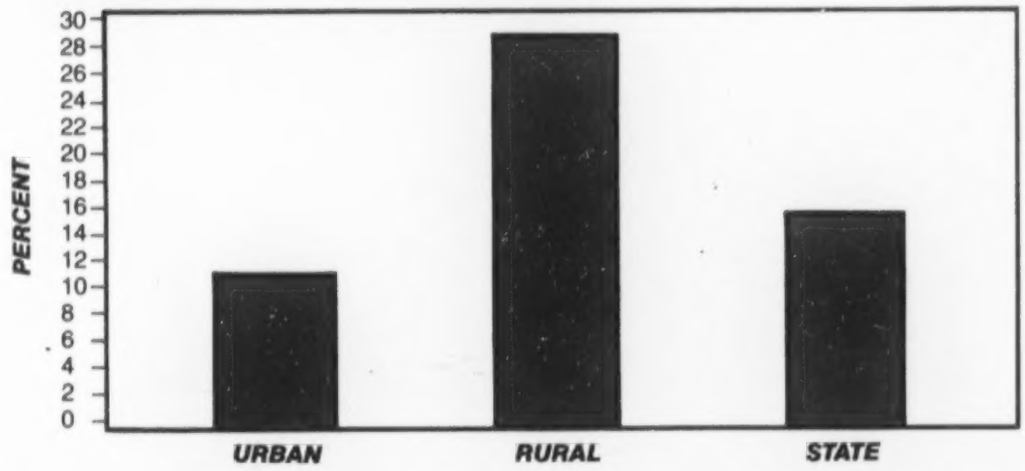
Poverty

Poverty status is one of three sociodemographic indicators used in this analysis. A generally recognized relationship between poverty and morbidity, and poverty and mortality exists (9). An analysis of the National Health Survey data demonstrates a greater prevalence and severity of chronic illness among low income people (10). Although the relationship between poverty and illness in the entire population is confounded by the fact that illness has an adverse impact on earning ability, this effect on children is less applicable. A review of existing research indicates that poor children are more likely to be ill than non-poor children and that appropriate health care has an ameliorating affect on this relationship (11).

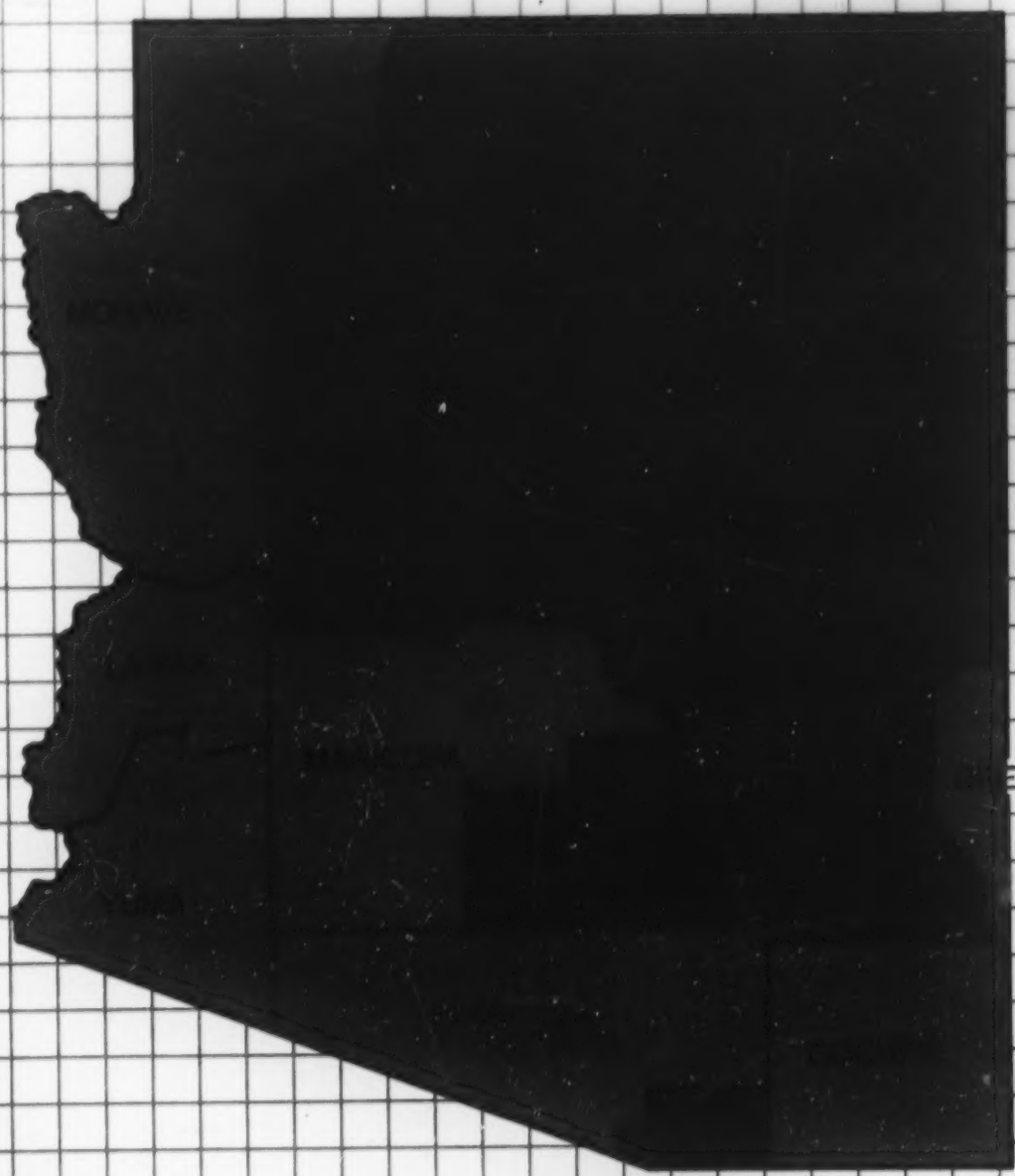
Information on the number of persons with family incomes below the poverty level and the total number of persons by zip code was obtained from the 1980 census. Poverty level is based on money income only and in 1980 was defined as $4,620 per year for a single person, or $8,414 per year for a family of four (12). Although there have been population changes in Arizona, using 1980 data because updated information on poverty level is not available was necessary. Percentages of population below poverty level were calculated for each zip code and county.

The percent of population below poverty in Arizona in 1980 was slightly higher than in the U.S. (13). Whereas the differences in other indicator rates used in this report between urban and rural areas is relatively small but almost consistently favoring urban areas, the differences in poverty are striking. Figure 4 shows that the percent of poverty in rural counties is more than twice the percentage in urban counties. In three counties in Arizona, the percent of population below poverty is higher than the overall rural rate; these counties are Apache, Navajo, and Yavapai. In five counties (Coconino, Graham, Gila, Pinal and Santa Cruz), this percentage of population is above the state rate but below the rural rate (Map 8). The percent of population below poverty for each rural zip code area is presented in Appendix A.

ARIZONA POPULATION BELOW POVERTY
URBAN, RURAL and STATE (1980)



Source: U.S. Census Bureau



BELOW STATE RATE

ABOVE STATE RATE

ABOVE RURAL RATE

EENLEE

ARIZONA POPULATION

Percent of Population Below
National Poverty Level

RATES:
STATE = 16.03%
RURAL = 29.20%

SOURCE: 1980 CENSUS

Race and Ethnicity

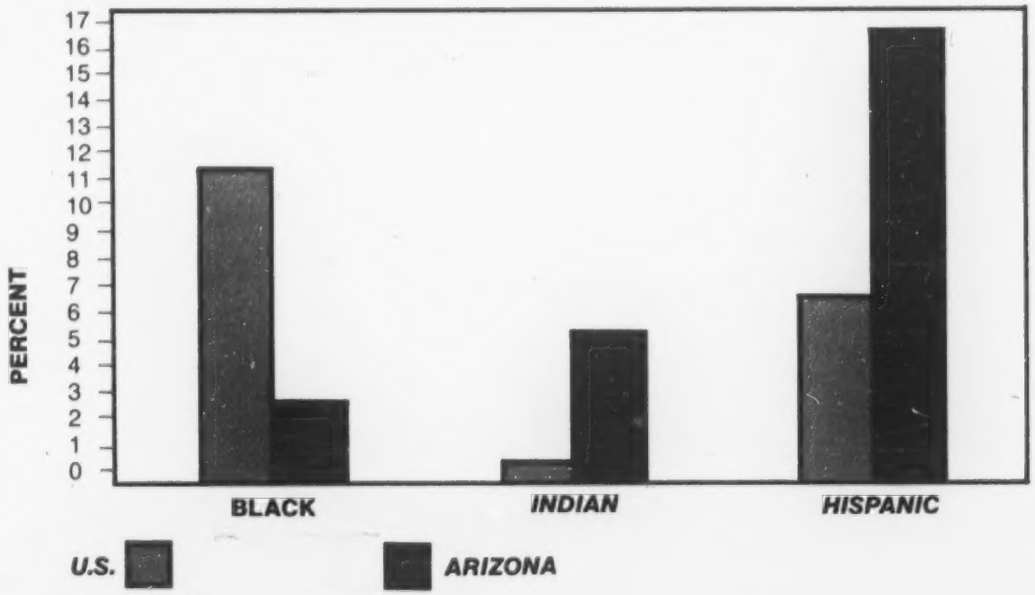
The percent of population that is black, Indian or Hispanic is the second sociodemographic indicator used in this analysis. The fact that these racial and ethnic minorities experience higher mortality and morbidity rates than whites in the U.S. is well known. During 1979-1981, approximately 139,000 blacks under the age of 70 died each year. If blacks experienced the same age-sex death rate as whites for that period of time, 42.3% of these deaths would not have occurred. The prevalence of morbidity due to hypertension, diabetes and anemia is as much as two times higher among blacks than whites. Native Americans also experience striking patterns of excess deaths compared to whites. During 1979-1981, one in four Native American deaths would not have occurred if mortality rates were the same as those for whites. The causes of death with the highest relative risk among Native Americans are cirrhosis and tuberculosis. The relative risk of death among Hispanics is less than the risk for blacks but higher than for whites. Homicide appears to lead the list of major causes of death among Hispanics (15).

Information on the number of black, American Indian, and Hispanic persons and the total population by county and zip code was obtained from the 1980 census. Although population changes in Arizona since 1980 are recognized, these data are not available in an updated form. The total percent of blacks, American Indians, and Hispanics were calculated for each county and zip code area in Arizona.

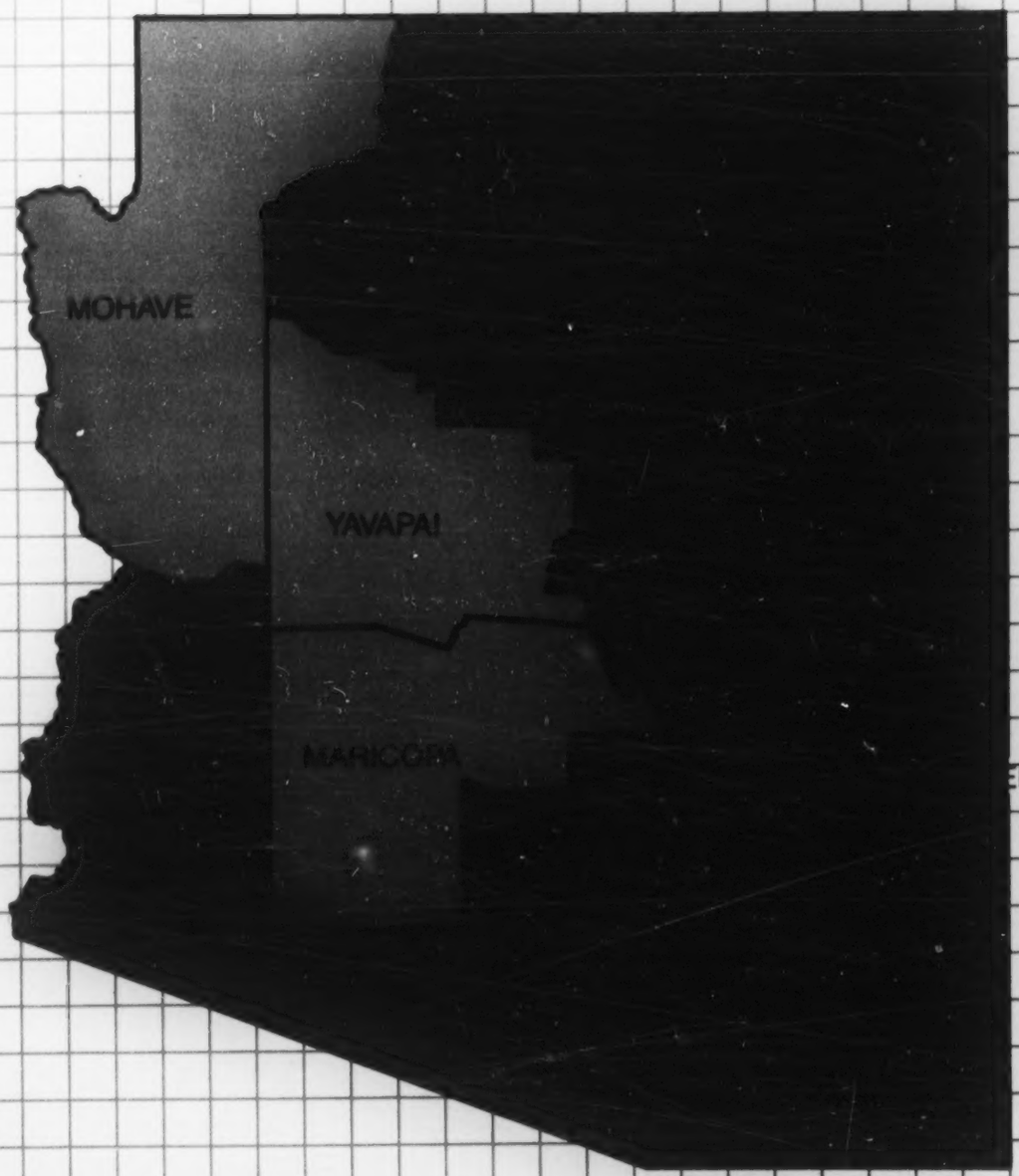
Figure 5 shows the comparative population percentages of blacks, American Indians, and Hispanics between Arizona and the U.S. Black population is a much smaller percentage in Arizona than in the U.S. but the Indian and Hispanic populations are much greater proportions. The overall rural percentage of black, Indian and Hispanic populations is greater than the overall urban percentage and the state as a whole, 38.44% compared to 20.19% (urban) and 24.74% (state). This percentage in seven counties in Arizona is higher than the rural rate (Apache, Coconino, Greenlee, Navajo, Pinal, Santa Cruz,and Yuma) and is higher than the state percentage but below that in rural counties in five counties (Cochise, Graham, Gila, La Paz,and Pima) (Map 9). The percent of population that is black, Indian, or Hispanic for each rural zip code area in the state is detailed in Appendix A.

POPULATION BY RACE AND ETHNICITY

U.S. and ARIZONA, 1980



Source: U.S. Census Bureau



BELOW STATE RATE

ABOVE STATE RATE

ABOVE RURAL RATE

ARIZONA POPULATION

Percent of Black, Indian, and Hispanic Population by County

RATES:
STATE = 24.74%
RURAL = 38.44%

SOURCE: 1980 CENSUS

Elderly

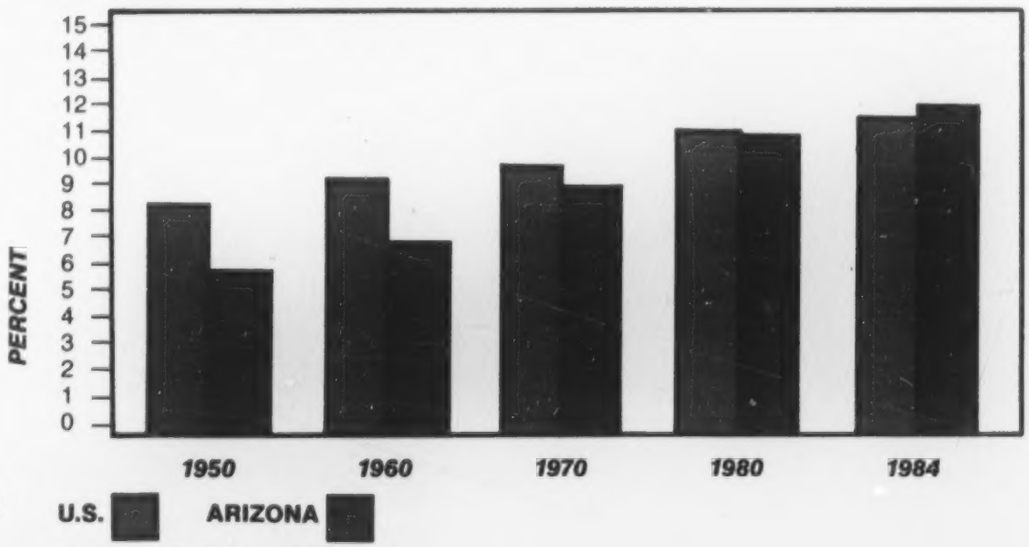
The percent of population that is 65 years of age and older is the final socio-demographic indicator used in this assessment. The health needs of the elderly are well documented. Data from the National Health Survey indicate that the number of physician visits per year vary with age and increases markedly for persons above 64 years of age. This is true for all racial and ethnic groups, males and females (15).

Information on population by age by zip code was obtained from the 1980 census. Estimated population updates by age for 1987 are available by zip code but were not used in this analysis in an attempt to be consistent with the other sociodemographic variables. The percent of population 65 years of age and older was calculated for each county and zip code area in Arizona.

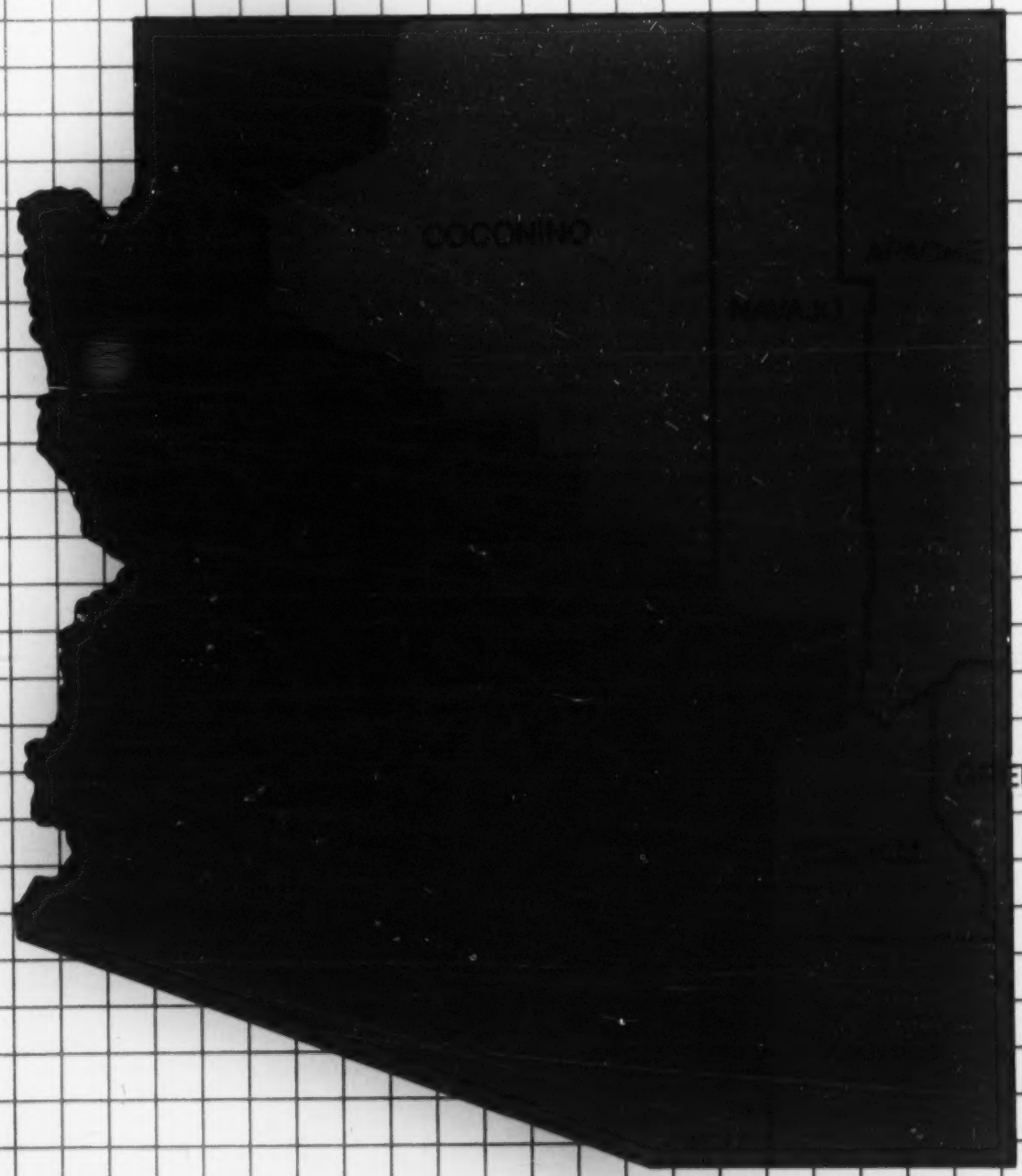
Figure 6 shows the trend in Arizona and the U.S. of an increasing elderly population. In addition, beginning in 1984 the percent of elderly in Arizona surpassed the overall U.S. proportion.This indicator is the only one among those used in this analysis which is higher for urban counties than for rural counties. The overall urban rate is 11.58% compared to 10.35% for rural counties and 11.27% for the entire state. Seven counties (Gila, La Paz, Maricopa, Mohave, Pima, Yavapai, and Yuma) have percentages of elderly population greater than the urban rate and one (Pinal) has a percentage that is higher than the state rate but lower than the urban rate (Map 10) The percentages for each zip code area in the state is presented in appendix A.

POPULATION GREATER THAN 64 YEARS OF AGE

U.S. and ARIZONA, 1950-1984



Source: U.S. Census Bureau



BELOW RURAL RATE

ABOVE RURAL RATE

ABOVE STATE RATE

ARIZONA POPULATION

Percent of Population
Greater Than 64 Years by County

RATES:
STATE = 10.35%
RURAL = 11.27%

SOURCE: 1980 CENSUS

Health Care Providers

Primary Care Physicians

The ratio of primary care medical doctors (M.D.s) and doctors of osteopathy to population is one of two healthcare provider indicators used in this assessment. Primary care is defined here as family or general practice, internal medicine, obstetrics and gynecology and pediatrics. Information about the presence of practicing primary care physicians by zip code area was obtained from data included in the companion document to this report, *Arizona Rural Health Provider Atlas* (1987) by Rena Gordon of the Rural Health Office. Ratios to population were calculated based on 1980 census for each county and rural zip code area.

The standard used by the Federal Government in order to designate a health manpower shortage area is fewer than one primary care physician to 3500 people, or 0.286 per 1000. The rural ratio of 0.567 is greater than this standard but almost half the urban ratio of 1.111 and significantly less than the state ratio of 0.975. Figure 7 compares the provider to population ration by urban, rural and state. The primary care physician to population ratio in six counties (Apache, Graham, Greenlee, La Paz, Navajo, and Pinal) is lower than the rural ratio; the remaining seven rural counties (Cochise, Coconino, Gila, Mohave, Yuma, and Yavapai) have ratios above the rural but below the state (Map 11). Appendix A details the ratios for each rural zip code area.

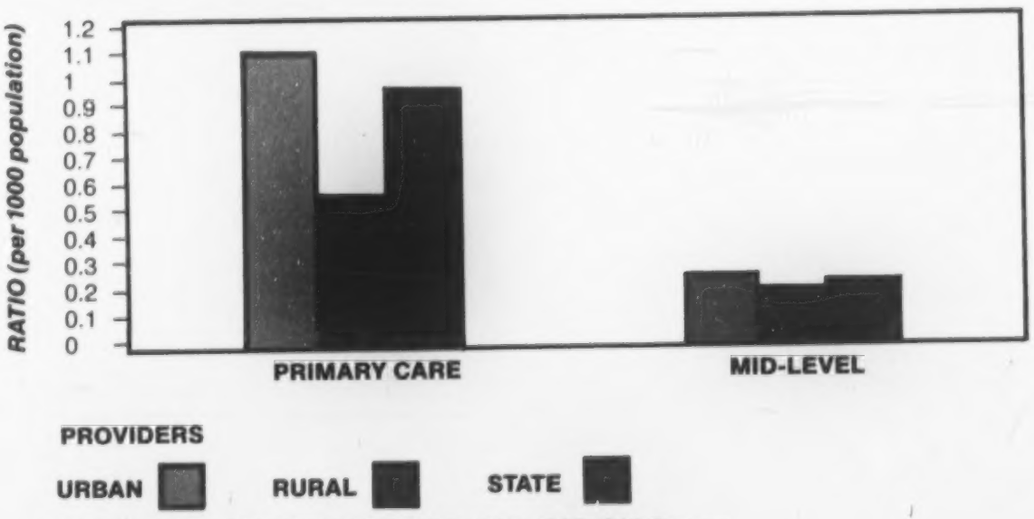
Mid-Level Providers

The ratio of nurse practitioners (N.P.s) and physician's assistants (P.A.s) to population is the second health provider indicator used in this assessment. Information on each licensed nurse practitioner (excluding nurse anesthetists) and physician's assistant was obtained from data included in the *Arizona Rural Health Provider Atlas* (1987). Ratios according to population were calculated based on the 1980 census for each county and rural zip code area.

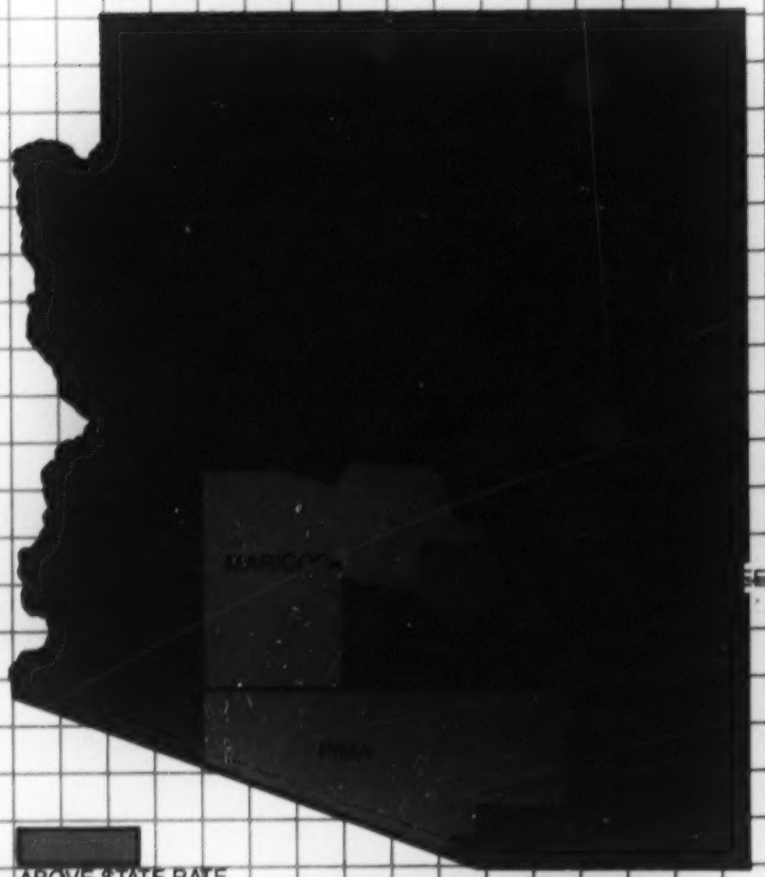
The ratio in rural counties, 0.239 per 1000, is only slightly less than the urban ratio of 0.270 and the state ratio of 0.263 (Figure 7). The mid-level provider to population ratio in seven counties (Greenlee, Gila, La Paz, Mohave, Pinal, Yavapai, and Yuma) is less than the rural average; in three counties (Cochise, Maricopa, and Santa Cruz), the average is less than the state but greater than the rural average (Map 12). These ratios are detailed by rural zip code area in Appendix A.

ARIZONA HEALTH CARE PROVIDERS

Urban, Rural and State Ratios



Source: Arizona Rural Health Provider Atlas, 1987; 1980 Census



ABOVE STATE RATE

ABOVE RURAL RATE

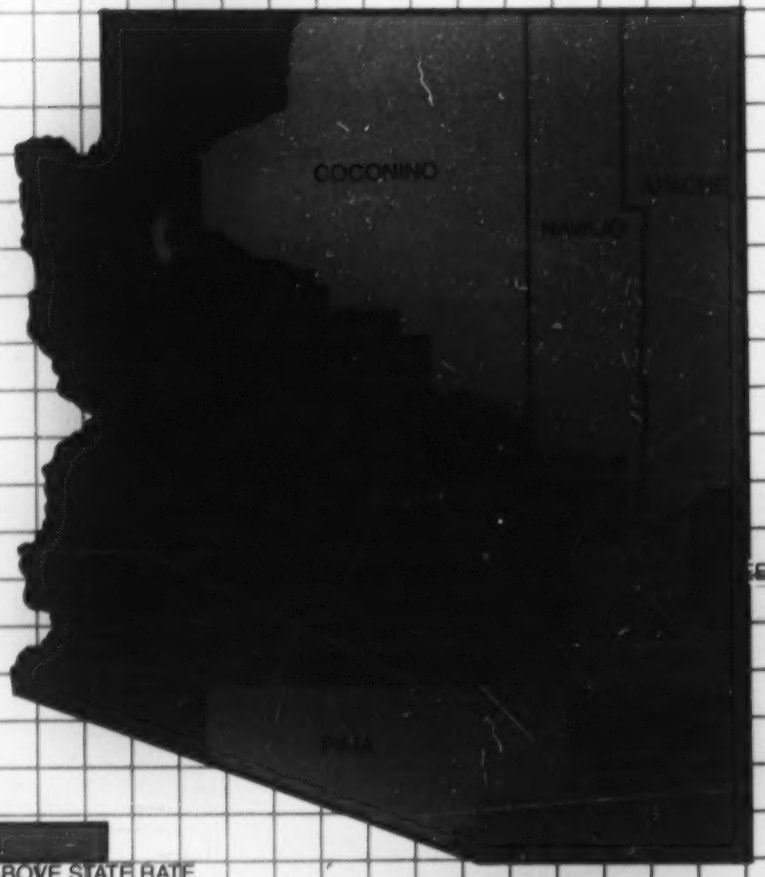
BELOW RURAL RATE

ARIZONA HEALTH CARE PROVIDERS

Distribution of Primary Care M.D.s and D.O.s by County

RATES: (PER 1000 PERSONS)
STATE = .975
RURAL = .567

SOURCE: ARIZONA RURAL HEALTH PROVIDER ATLAS, 1987 AND 1980 CENSUS



ABOVE STATE RATE

ABOVE RURAL RATE

BELOW RURAL RATE

ARIZONA HEALTH CARE PROVIDERS

Distribution of Nurse Practitioners and Physician's Assistants by County

RATES: (PER 1000 PERSONS)
STATE = .263
RURAL = .239

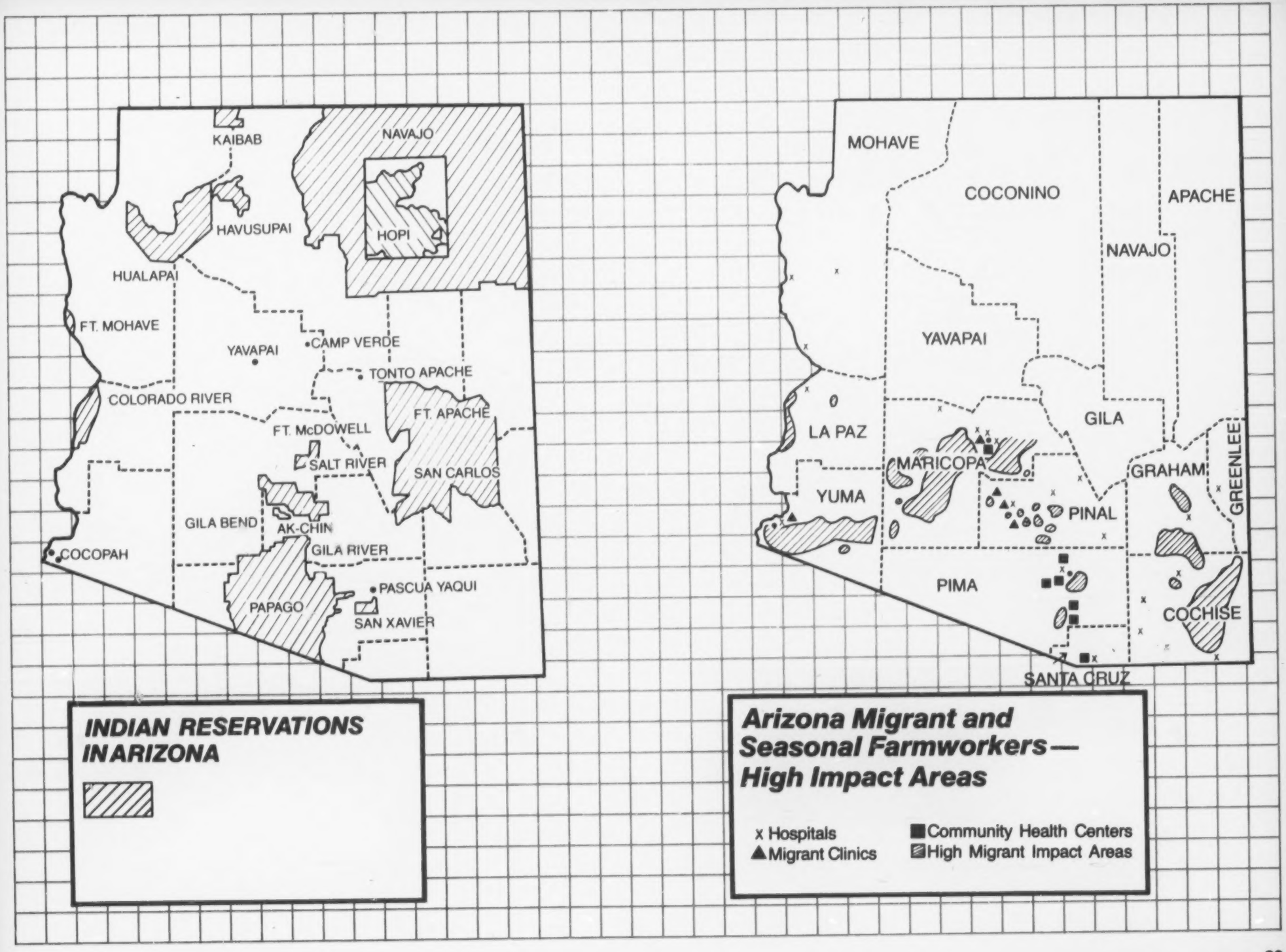
SOURCE: ARIZONA RURAL HEALTH PROVIDER ATLAS, 1987 AND 1980 CENSUS

Indian Reservations

The presence of an Indian reservation is one of two special needs indicators used in this assessment. The excessive morbidity and mortality among American Indians has been documented earlier in this report. Although percent of population that is Indian is one of the sociodemographic indicators used, concentrations of Indian population on the reservation potentiates the need and allows for geographic targeting. Map 13 represents the geographic locations of Arizona Indian reservations and Appendix A details zip code areas that are totally or partially on reservations.

Migrant and Seasonal Farmworkers

The significant presence of migrant and seasonal farmworkers is the second special needs indicator used in this analysis. Because of the migratory nature of this group, they are under-represented in census and vital statistics. "Third world" living conditions and high disease rates of maladies such as parasitic infections and other communicable diseases have been described in Arizona (16,17). Map 14 represents high migrant impact areas in Arizona as described by Robert Trotter in his report "Arizona Migrant and Seasonal Farmworker High Density Areas" (18). Appendix A details the rural zip code areas in which there is a high migrant impact.


KAIBAB
NAVAJO
HAVUSUPAI
HOPI
HUALAPAI
FT. MOHAVE
YAVAPAI
CAMP VERDE
TONTO APACHE
COLORADO RIVER
FT. McDOWELL
FT. APACHE
SALT RIVER
SAN CARLOS
GILA BEND
AK-CHIN
COCOPAH
GILA RIVER
PASCUA YAQUI
PAPAGO
SAN XAVIER
INDIAN RESERVATIONS IN ARIZONA
MOHAVE
COCONINO
APACHE
NAVAJO
YAVAPAI
GILA
LA PAZ
MARICOPA
GRAHAM
GREENLEE
YUMA
PINAL
PIMA
COCHISE
SANTA CRUZ
Arizona Migrant and Seasonal Farmworkers — High Impact Areas
x Hospitals
▲ Migrant Clinics
■ Community Health Centers
▨ High Migrant Impact Areas

Small Area Needs Analysis

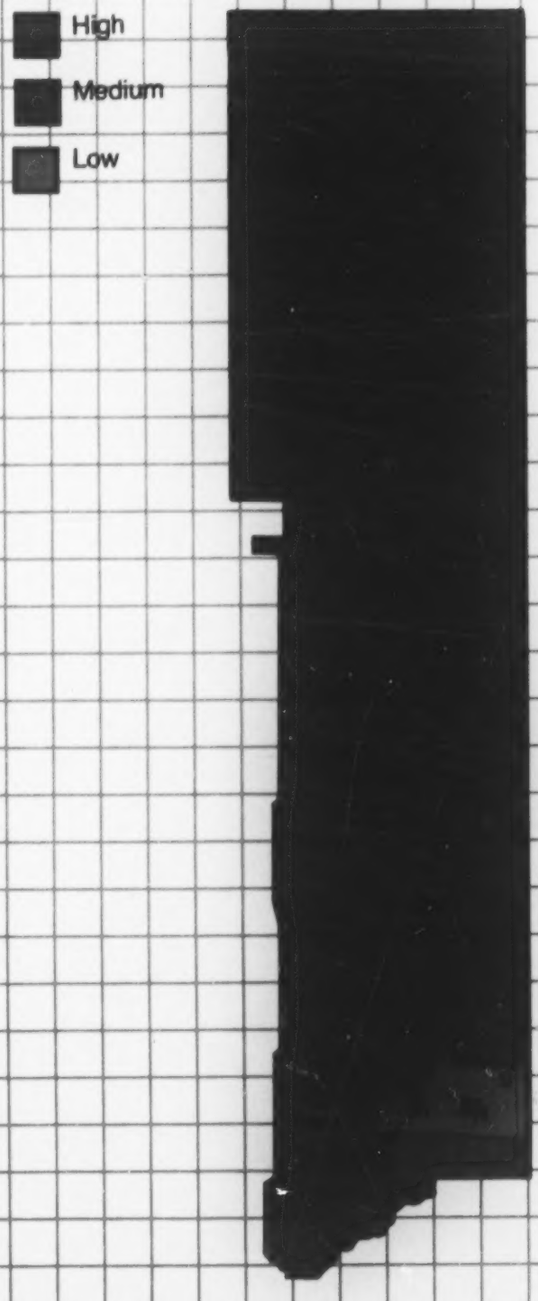
Small Area Needs Analysis

The major purpose of this assessment is to target rural areas in the state that demonstrate a high unmet need for primary health care services.In order to accomplish this purpose, need indicator data were analyzed by each rural zip code area in the state. The method of analysis described below is only one way in which this data can be examined. People with other goals may utilize the complete data table, in a variety of ways, included in this report (Appendix A).

As with the county data, each variable for each rural zip code area was compared to the overall rural and state rate for the particular variable. High need is indicated when the rate is worse than the overall rural rate. Medium need is indicated when the rate is worse than the state rate but better than the rural rate. The one exception to this is in the case of percent of elderly population where the standard of high need is the state rate and medium need is the rural rate. In each instance of highest need, a score of two points was given to the area; in each instance of high need, a score of one point was given. These points were totaled and areas were aggregated into thirds. The greatest number of points is 16 and the lowest is three.

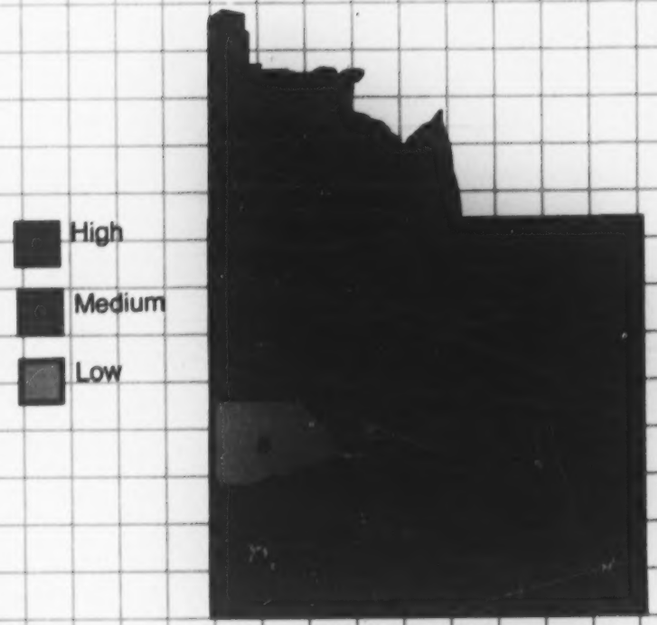
Maps 15 through 27 display zip code areas ranked with a high, medium and low need for primary health care services. Scores for each zip code area were calculated as described above. Scores less than eight are assigned low need, scores eight through 12 are assigned medium need and scores greater than 12 are assigned high need. As noted earlier, data for three zip code areas are not available; two are located in Pinal County and one in Mohave County.Ft. Apache Indian Reservation has been assigned a different value in Apache County than in Navajo County to adjust for the county-specific health data. This county specific data refers only to that part of the reservation that is in the particular county,but census data reflects the entire reservation regardless of county boundaries.

There is one major limitation to analysis of variables by small area. The number of events is too small to derive any statistically significant or sound conclusions. The results achieved in this study represent a descriptive analysis requiring validation with other sources of information, especially that which is gathered directly from the community.



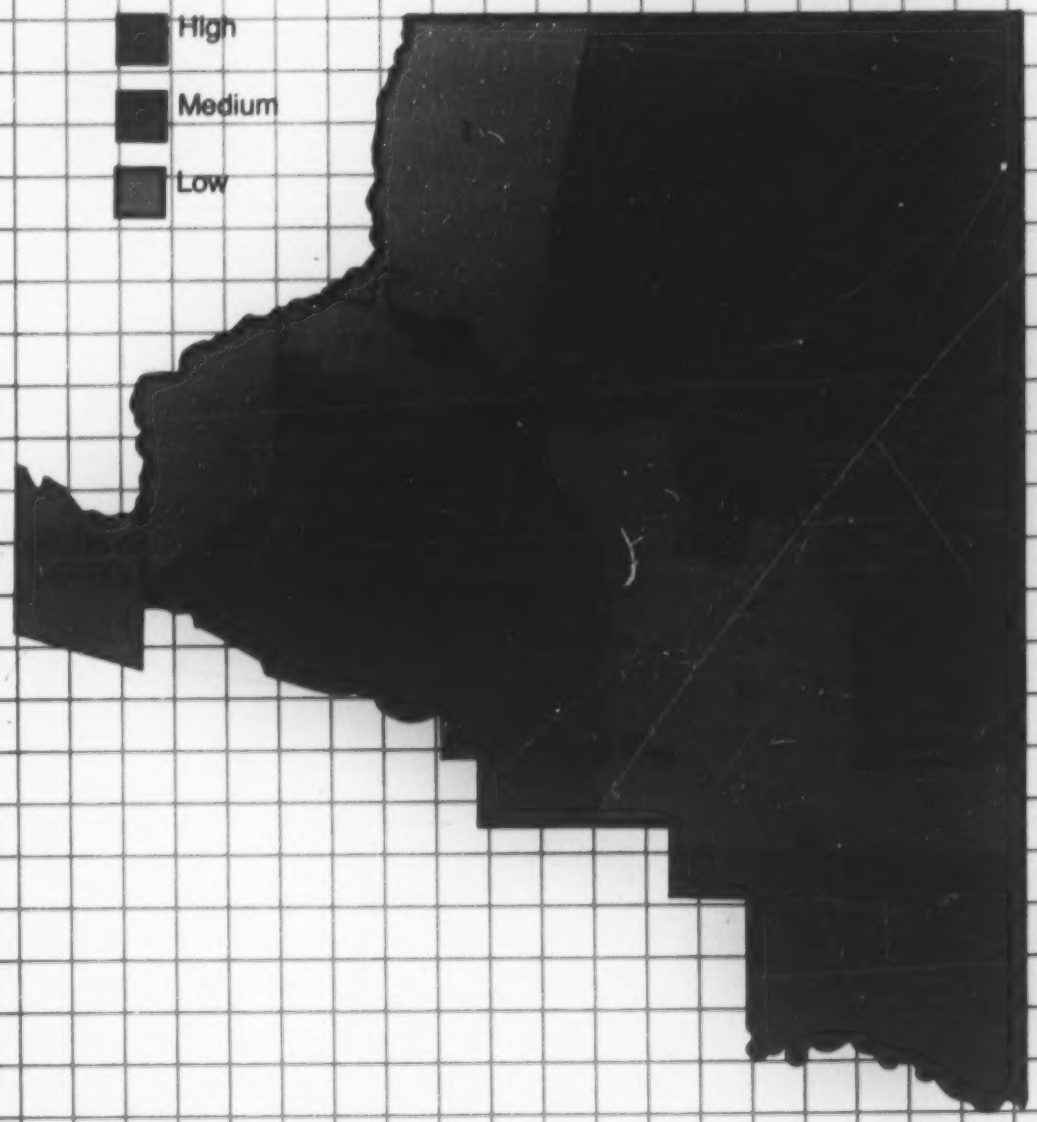
APACHE COUNTY

1 Navajo Indian Reservation
2 Sanders
3 Chambers
4 Navajo
5 Concho
6 St. Johns
7 Vernon
8 Springerville
9 Eagar
10 Greer
11 Nutrioso
12 Ft. Apache Indian Reservation
13 Alpine



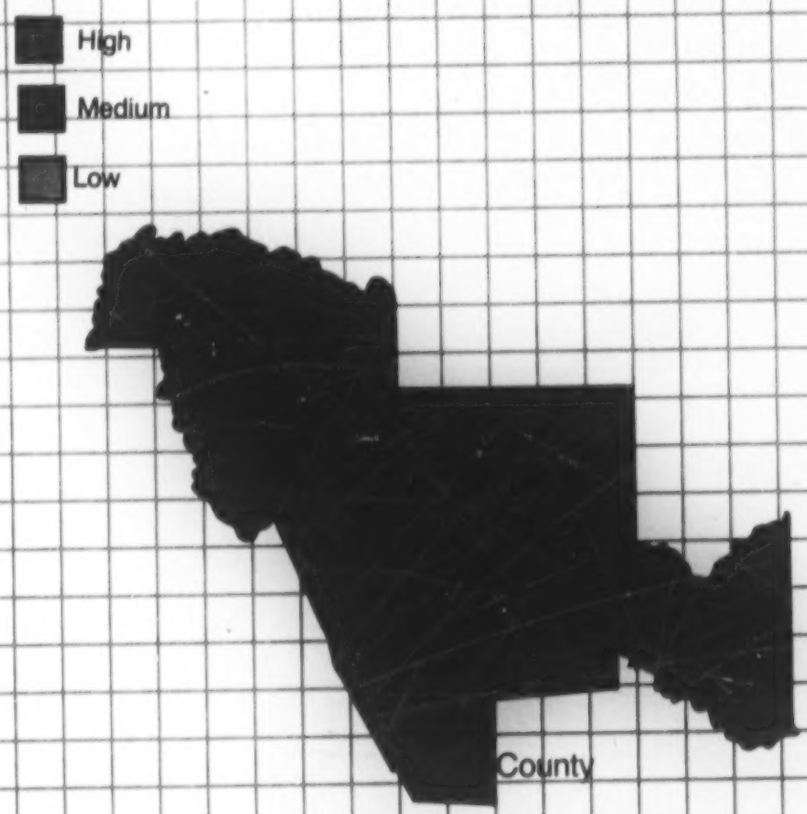
COCHISE COUNTY

1 San Simon
2 Cochise
3 Willcox
4 Bowie
5 Dragoon
6 Benson
7 Pomerene
8 St. David
9 Tombstone
10 Pearce
11 Elfrida
12 Huachuca City
13 McNeal
14 Ft. Huachuca
15 Sierra Vista
16 Bisbee
17 Douglas
18 Hereford
19 Naco
20 Pirtleville



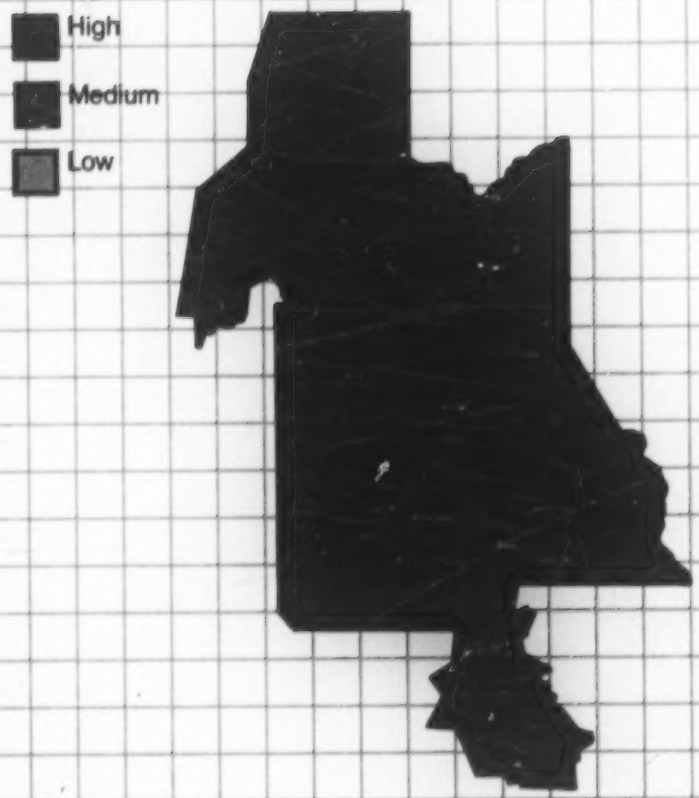
COCONINO COUNTY

1 Fredonia
2 Marble Canyon
3 Havasupai Indian Reservation
4 North Rim
5 Navajo Indian Reservation
6 Grand Canyon
7 Hopi Indian Reservation
8 Hualapai Indian Reservation
9 Williams
10 Flagstaff
11 Parks
12 Bellemont
13 Mormon Lake
14 Sedona
15 Munds Park
16 Happy Jack



GILA COUNTY

1. Pine
2. Payson
3. Young
4. Tonto Basin
5. Roosevelt
6. Ft. Apache and San Carlos Indian Reservation
7. Claypool
8. Miami
9. Globe
10. Winkelman
11. Hayden



GRAHAM COUNTY

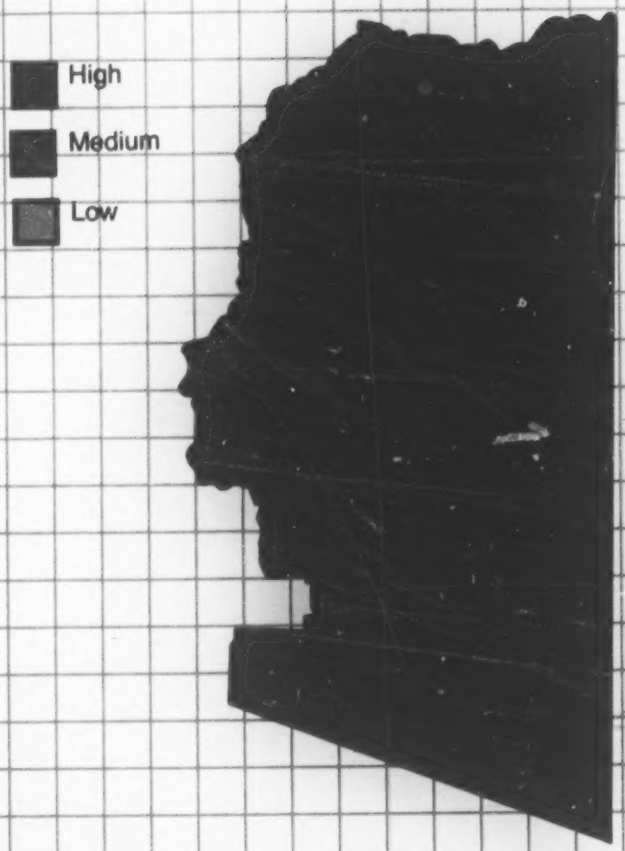
1 San Carlos Indian Reservation
2 Ft. Thomas
3 Pima
4 Thatcher
5 Safford
6 Central
7 Solomon
8 Ft. Grant

Medium

Low

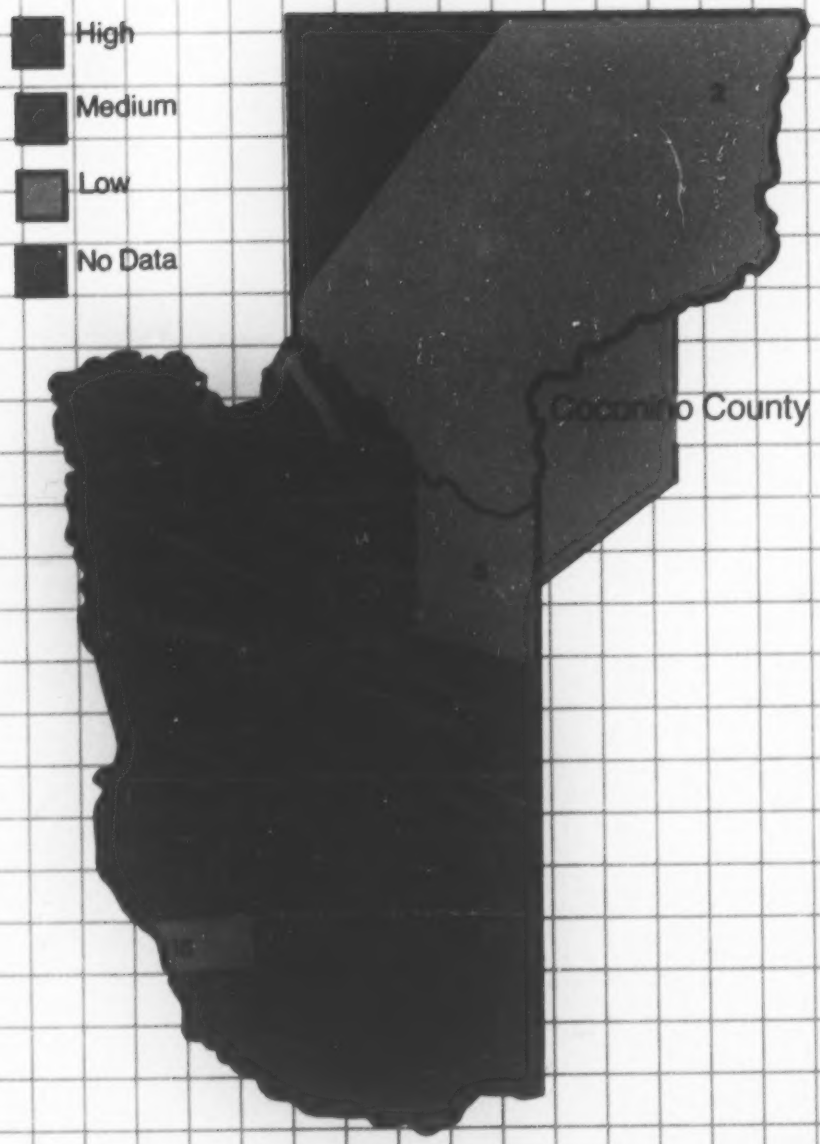
GREENLEE COUNTY

1 Beaverhead
2 Clifton
3 Morenci
4 Duncan



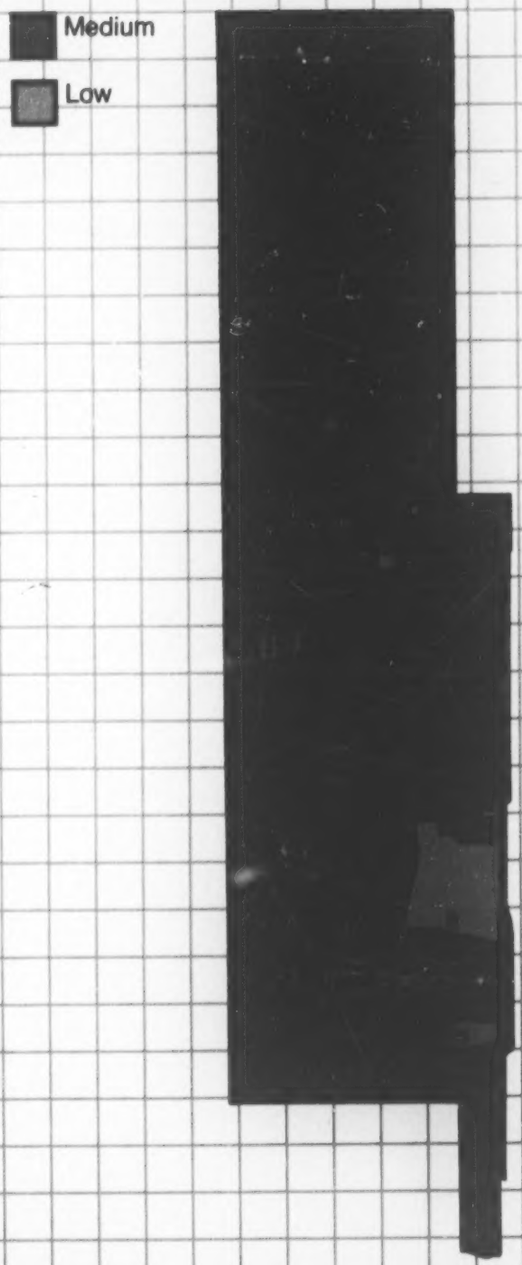
LA PAZ COUNTY

1 Parker
2 Poston
3 Bouse
4 Wenden
5 Salome
6 Quartzsite
7 (85347)
8 Ehrenberg
9 Cibola



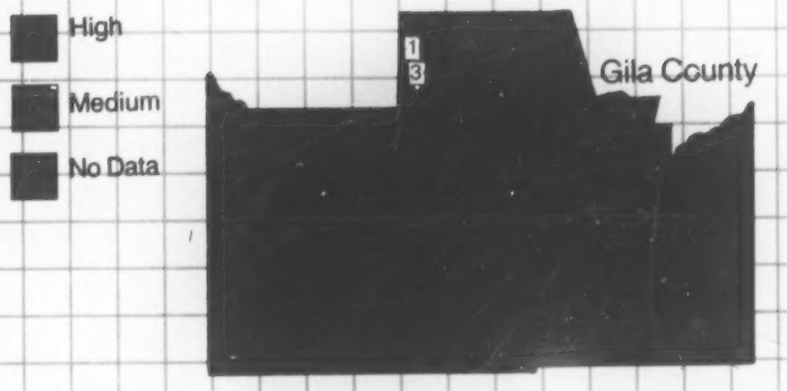
MOHAVE COUNTY

1 Littlefield
2 Kaibob Indian Reservation
3 Temple Bar Marina
4 Dolan Springs
5 Hualapai/Peach Springs Indian Reservation
6 Chloride
7 Kingman
8 Hualapai/Valentine Indian Reservation
9 Bullhead City
10 Riveria
11 Oatman
12 Ft. Mohave Indian Reservation
13 Mohave Valley
14 Yucca
15 Topock
16 Wikieup
17 Lake Havasu City



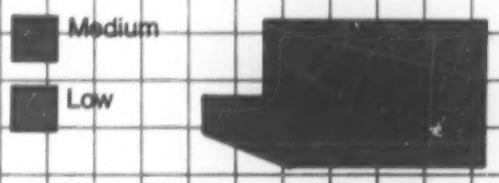
NAVAJO COUNTY

1 Navajo Indian Reservation
2 Hopi Indian Reservation
3 Joseph City
4 Sun Valley
5 Holbrook
6 Woodruff
7 Petrified Forest National Park
8 Snowflake
9 Heber
10 Clay Springs
11 Taylor
12 Overgaard
13 Pinedale
14 Ft. Apache Indian Reservation
15 Lakeside
16 Pinetop



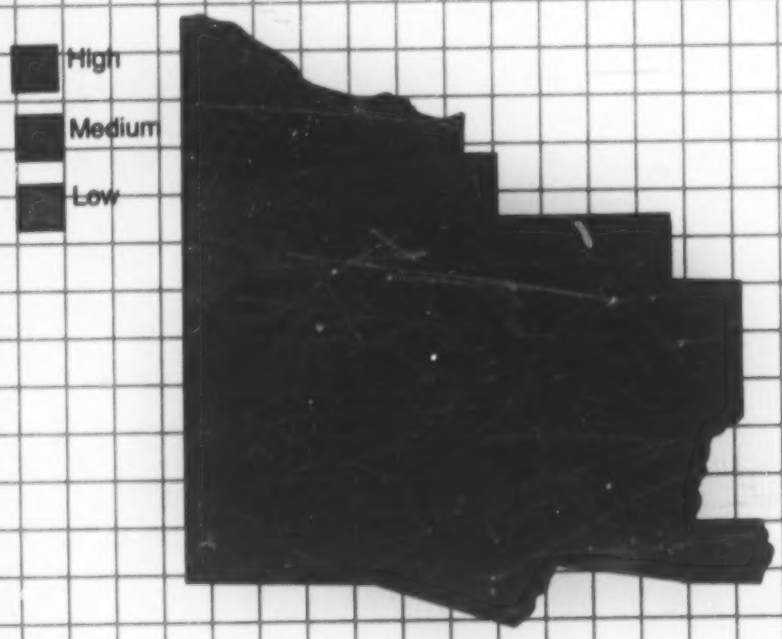
PINAL COUNTY

1 Apache Junction
2 Superior
3 (85219)
4 (85220)
5 Gila River Indian Reservation
6 Maricopa
7 Stanfield
8 Florence
9 Kearny
10 San Carlos Indian Reservation
11 Coolidge
12 Valley Farms
13 Casa Grande
14 Arizona City
15 Eloy
16 Picacho
17 Mammoth
18 Oracle
19 San Manuel
20 Red Rock



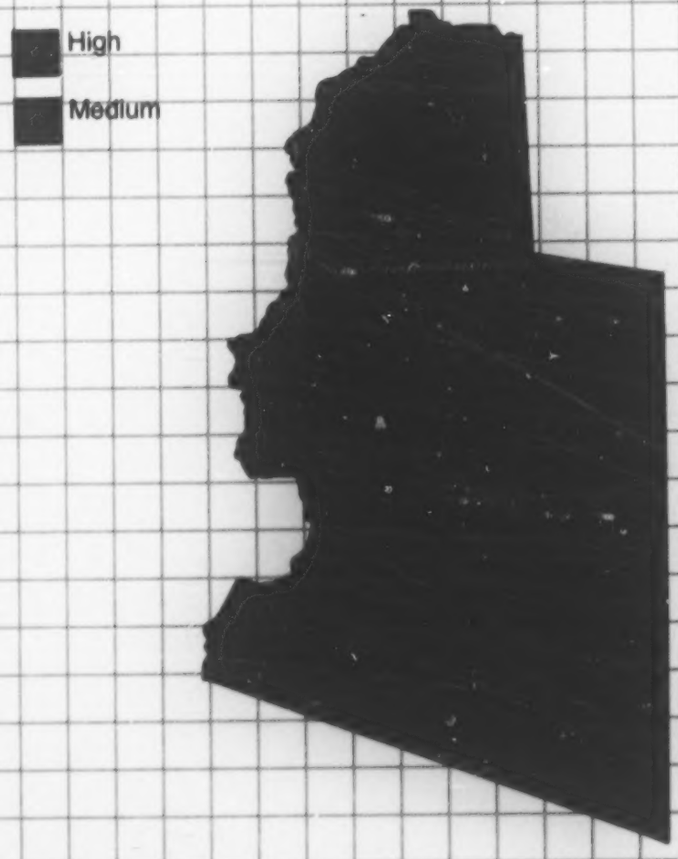
SANTA CRUZ COUNTY

1 Tubac
2 Sonoita
3 Elgin
4 Patagonia
5 Nogales



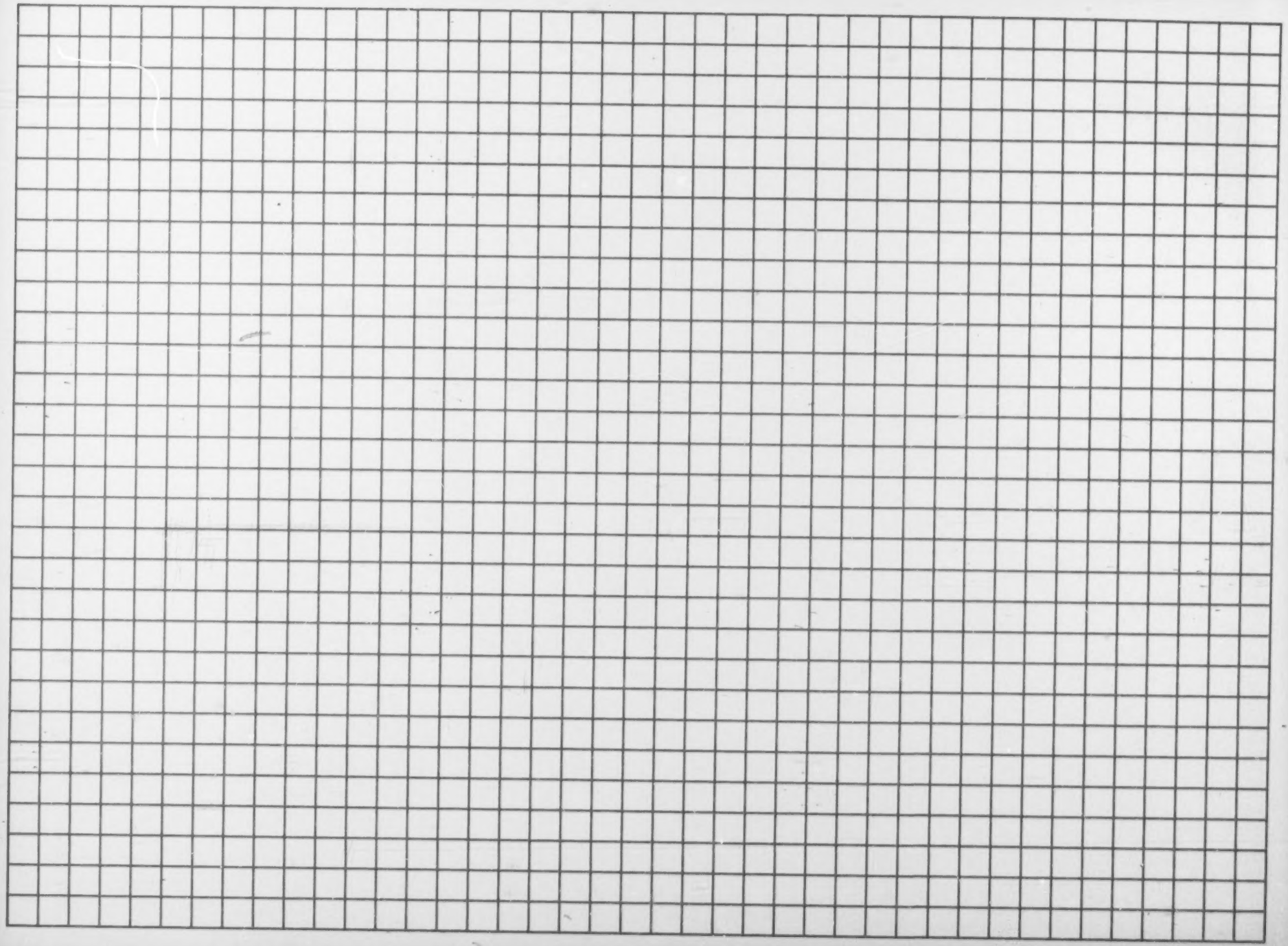
YAVAPAI COUNTY

1 Ashfork
2 (86320)
3 Paulden
4 Clarkdale
5 Chino Valley
6 Jerome
7 Rimrock
8 Iron Springs
9 Cottonwood
10 Lake Montezuma
11 Bagdad
12 Skull Valley
13 Prescott
14 Goodwin
15 Cornville
16 Humboldt
17 Dewey
18 Camp Verde Indian Reservation
19 Kirkland
20 Mayer
21 Yarnell
22 Congress
23 Black Canyon
24 Castle Hot Springs



YUMA COUNTY

1 (85344)
2 Roll
3 Wellton
4 Yuma
5 Tacna
6 Gadsden
7 Somerton
8 San Luis



Conclusion

Arizona is a predominately rural state with a sparsely distributed population outside of well-defined population centers (Map 1). Since the geographic boundaries of counties are large, small areas need to be defined for evaluating the need for primary health care services. This rural needs assessment utilized zip code boundaries for this purpose. Health, sociodemographic, health care provider, and special needs indicators were evaluated by county and by each rural zip code area in the state.

Based on the ranking system used in this analysis, La Paz, Pinal and Yuma counties appear to have the most areas in high need of primary health care services. Four zip code areas in the state have the largest number of highest need indicators: Bowie (Cochise County), Eloy (Pinal County), Stanfield (Pinal County), and Wellton (Yuma County). The ranking system used in this report is merely one way to categorize and describe need in the state. The data included as Appendix A can be utilized in a variety of ways to achieve various purposes.

The crucial next step after evaluating need based on these indicators is community-based work to more precisely define needs as well as resources. These data are meant to point health workers to areas that appear to require intervention. Solutions must be developed which account for the individual characteristics of specific communities. In addition, it is clear that health status in Arizona varies among different population and geographic groups. Optimal health status is not equally distributed across the state.

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Appendices

Appendix A

Appendix A Statewide Data Table

AREA DESCRIPTION	POPULATION	HEALTH STATUS: AGE ADJUSTED DEATH	HEALTH STATUS: % LOW WEIGHT BIRTHS	HEALTH STATUS: % TEEN BIRTHS	SOCIODEMOGRAPHICS: % BELOW POVERTY	SOCIODEMOGRAPHICS: % BLACK, INDIAN, HISPANIC	SOCIODEMOGRAPHICS: % 65 YEARS AND OLDER	HEALTH CARE PROVIDERS: M.D./D.O. PER THOUSAND	HEALTH CARE PROVIDERS: N.P./P.A. PER THOUSAND	SPECIAL NEEDS: SEASONAL MIGRANT WORKERS	SPECIAL NEEDS: INDIAN RESERVATIONS
U.S.	231,106,727	5.46	6.82	15.60	13.00	17.70	11.30	0.73	NA		
STATEWIDE	2,718,215	6.15	6.10	14.40	16.03	24.74	11.27	0.98	0.26		
URBAN COUNTIES:	2,040,705	6.11	6.00	13.90	11.19	20.19	11.58	1.11	0.27		
MARICOPA	1,509,262	6.03	6.04	14.26	10.54	17.95	11.55	1.10	0.2		
PIMA	531,443	6.05	5.99	12.96	13.05	26.52	11.65	1.14	0.32		
RURAL COUNTIES:	677,510	6.23	6.20	15.50	29.20	38.44	10.35	0.57	0.24		
APACHE	52,108	5.25	7.17	17.41	59.98	78.96	5.34	0.36	0.31		
Alpine	422	4.38	11.76	17.65	16.67	3.08	8.06	2.37	0.00	NO	NO
Chambers	1,077	2.30	14.29	19.40	64.00	87.74	10.49	0.00	0.00	NO	YES
Concho	630	12.45	7.35	7.35	0.00	9.52	1.90	0.00	0.00	NO	NO
Eager	2,221	3.47	5.75	10.09	23.08	8.15	9.23	0.00	0.45	NO	NO
Greer	94	4.42	6.67	0.00	0.00	25.53	31.91	0.00	0.00	NO	NO
Navajo	60	0.36	11.11	0.00	0.00	0.00	63.33	0.00	0.00	NO	NO
Nutrioso	129	3.41	14.29	14.29	60.00	1.55	13.18	0.00	0.00	NO	NO
St. Johns	4,018	3.37	8.42	12.57	61.70	23.17	7.94	0.25	0.25	NO	NO
Sanders	894	1.46	12.40	20.88	0.00	64.43	12.19	0.00	0.00	NO	NO
Springerville	2,497	3.43	12.63	17.74	11.43	24.95	12.29	2.80	0.00	NO	NO
Vernon	106	27.02	10.00	3.33	0.00	34.91	19.81	0.00	0.00	NO	NO
Ft. Apache Indian Reservation	6,626	0.51	11.63	34.09	29.61	20.15	10.08	0.00	0.00	NO	YES
Navajo Indian Reservation	39,683	3.05	8.54	34.10	49.18	94.27	7.10	1.16	0.50	NO	YES
COCHISE	85,686	6.03	7.60	14.00	14.95	31.03	10.25	0.60	0.25		
Benson	6,022	3.36	8.67	17.28	38.95	20.04	25.76	0.66	0.50	NO	NO
Bisbee	8,174	3.97	9.74	17.44	22.84	36.04	26.16	0.61	0.24	NO	NO
Bowie	729	3.05	9.43	28.30	100.00	49.52	30.32	0.00	0.00	YES	NO
Cochise	720	3.62	6.98	7.63	30.43	22.78	30.28	0.00	0.00	NO	NO
Douglas	16,150	3.67	6.98	16.29	14.16	68.61	18.35	0.62	0.31	YES	NO
Dragoon	160	3.81	0.00	25.00	0.00	16.88	65.00	0.00	0.00	NO	NO
Elfrida	1,161	3.83	5.61	16.82	63.64	22.22	14.73	0.00	0.86	YES	NO
Ft. Huachuca	9,614	7.63	7.76	6.55	0.00	24.70	0.29	0.83	0.00	NO	NO
Hereford	2,016	4.43	5.63	3.60	31.25	15.77	14.83	0.00	0.00	NO	NO
Huachuca City	3,367	4.28	10.09	15.90	85.96	18.32	10.93	0.00	0.00	NO	NO
McNeal	909	3.15	5.08	10.17	100.00	9.02	20.68	0.00	2.20	YES	NO
Naco	565	3.95	7.87	24.72	29.17	79.47	31.86	0.00	0.00	NO	NO
Pearce	1,460	3.63	12.73	18.18	100.00	4.18	47.81	0.00	0.68	NO	NO
Pirtleville	1,054	4.47	2.53	32.91	0.00	92.88	11.10	0.00	0.00	NO	NO
Pomerene	217	3.70	4.65	0.00	0.00	17.05	38.25	0.00	0.00	NO	NO
St. David	1,579	3.55	2.44	5.69	0.00	11.15	23.37	0.00	0.00	NO	NO
San Simon	668	3.03	7.50	30.00	0.00	18.26	18.56	0.00	0.00	YES	NO
Sierra Vista	23,166	4.66	7.49	12.91	53.03	14.94	7.92	0.73	0.22	NO	NO
Tombstone	1,870	4.72	11.82	21.82	26.32	23.85	28.56	0.53	0.53	NO	NO
Willcox	7,269	3.77	6.62	18.32	56.33	26.70	17.84	0.83	0.14	YES	NO

AREA DESCRIPTION	POPULATION	HEALTH STATUS: AGE ADJUSTED DEATH	HEALTH STATUS: % LOW WEIGHT BIRTHS	HEALTH STATUS: % TEEN BIRTHS	SOCIODEMOGRAPHICS: % BELOW POVERTY	SOCIODEMOGRAPHICS: % BLACK, INDIAN, HISPANIC	SOCIODEMOGRAPHICS: % 65 YEARS AND OLDER	HEALTH CARE PROVIDERS: M.D./D.O. PER THOUSAND	HEALTH CARE PROVIDERS: N.P./P.A. PER THOUSAND	SPECIAL NEEDS: SEASONAL MIGRANT WORKERS	SPECIAL NEEDS: INDIAN RESERVATIONS
COCONINO	75,006	5.86	6.32	14.30	20.37	39.42	4.70	0.67	0.37		
Bellemont	266	0.00	10.34	27.59	0.00	34.96	0.00	0.00	0.00	NO	NO
Flagstaff	34,877	4.15	7.77	11.33	38.15	23.39	5.92	1.00	0.40	NO	NO
Fredonia	1,264	0.78	14.66	18.10	13.93	16.22	10.92	0.79	0.79	NO	NO
Grand Canyon	1,791	4.64	10.06	8.28	87.91	17.98	1.23	0.00	0.00	NO	NO
Happy Jack	229	5.23	13.33	6.25	0.00	7.86	15.28	0.00	0.00	NO	NO
Marble Canyon	195	3.31	25.00	31.25	0.00	69.74	0.00	0.00	0.00	NO	NO
Mormon Lake	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NO	NO
Munds Park	448	11.60	0.00	0.00	0.00	0.00	3.57	0.00	0.00	NO	NO
North Rim	28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NO	NO
Parks	71	3.55	0.00	3.57	100.00	0.00	50.70	0.00	14.08	NO	NO
Sedona	6,113	1.40	10.96	5.48	49.02	1.29	47.49	0.33	0.33	NO	NO
Williams	2,958	4.82	9.63	20.00	46.34	27.99	13.59	0.68	0.00	NO	NO
Havasupai Indian Reservation	275	4.49	5.88	9.80	0.00	92.73	6.18	0.00	7.27	NO	YES
Hopi Indian Reservation	2,845	5.41	10.03	21.07	64.29	99.68	6.12	0.00	0.00	NO	YES
Hualapai Indian Reservation	1,002	0.00	0.00	100.00	0.00	81.64	3.79	0.00	0.00	NO	YES
Navajo Indian Reservation	17,658	4.07	8.24	33.23	79.25	71.83	5.71	1.47	0.68	NO	YES
GILA	37,080	7.23	5.51	7.43	16.24	35.17	12.87	0.62	0.11		
Claypool	3,147	3.23	8.93	26.79	22.35	29.65	14.68	1.27	0.00	NO	NO
Globe	12,257	3.86	4.99	19.02	32.37	22.33	19.52	0.49	0.00	NO	NO
Hayden	1,587	4.83	4.95	13.86	2.17	81.29	15.00	0.00	0.00	NO	NO
Miami	5,038	10.32	5.75	25.75	13.76	51.61	17.11	0.60	0.00	NO	NO
Payson	7,152	1.51	4.27	14.84	34.59	5.16	31.36	1.26	0.28	NO	YES
Pine	1,227	8.09	2.56	7.69	33.33	0.90	31.78	0.00	0.81	NO	NO
Roosevelt	306	5.11	4.05	12.16	0.00	0.00	33.33	0.00	0.00	NO	NO
Tonto Basin	290	8.06	13.33	25.00	100.00	2.07	23.79	0.00	0.00	NO	NO
Winkelman	3,025	2.17	9.86	28.17	10.84	54.25	10.68	0.00	0.00	NO	YES
Young	410	4.23	8.82	22.86	100.00	0.00	15.12	2.44	0.00	NO	NO
Ft. Apache & San Carlos I.R.	4,622	8.00	5.64	21.98	4.55	96.80	7.81	1.51	0.65	NO	YES
GRAHAM	22,862	6.44	5.61	19.26	19.34	38.15	9.82	0.35	0.70		
Central	282	11.24	4.88	12.20	0.00	0.00	7.80	0.00	0.00	NO	NO
Ft. Grant	7,269	0.42	0.00	22.22	56.33	26.70	17.84	0.00	0.00	YES	NO
Ft. Thomas	465	2.94	9.80	7.84	100.00	2.15	16.34	0.00	0.00	NO	NO
Pima	1,968	3.77	7.81	14.06	33.33	15.60	16.67	0.00	0.51	YES	NO
Safford	12,090	3.21	5.90	20.07	56.94	33.85	18.50	0.66	1.24	NO	NO
Solomon	626	25.52	2.44	28.05	75.00	77.32	14.22	0.00	0.00	NO	NO
Thatcher	3,752	2.88	3.77	14.82	59.38	23.48	14.10	0.00	0.00	NO	NO
San Carlos Indian Reservation	5,139	2.72	5.16	29.64	5.88	97.53	5.82	0.00	0.00	NO	YES
GREENLEE	11,406	5.81	4.84	17.15	8.81	50.65	6.25	0.26	0.09		
Beaverhead	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NO	NO
Clifton	3,328	27.61	6.50	19.92	4.93	65.69	17.49	0.60	0.00	NO	NO
Duncan	2,341	29.96	4.65	13.02	7.09	30.59	14.22	0.43	0.00	YES	NO
Morenci	5,720	28.58	8.60	17.48	2.63	50.14	2.73	0.17	0.17	NO	NO

AREA		HEALTH STATUS			SOCIODEMOGRAPHICS			HEALTH CARE PROVIDERS		SPECIAL NEEDS	
DESCRIPTION	POPULATION	AGE ADJUSTED DEATH	% LOW WEIGHT BIRTHS	% TEEN BIRTHS	% BELOW POVERTY	% BLACK, INDIAN, HISPANIC	% 65 YEARS AND OLDER	M.D./D.O. PER THOUSAND	N.P./P.A. PER THOUSAND	SEASONAL MIGRANT WORKERS	INDIAN RESERVATIONS
LA PAZ	12,557	4.76	7.68	18.65	15.97	35.54	19.54	0.56	0.16		
85347	1,555	0.00	7.04	15.49	100.00	20.84	13.50	0.00	0.00	YES	NO
Bouse	468	2.56	5.26	21.05	100.00	4.27	39.10	0.00	0.00	YES	NO
Cibola	2,186	0.63	6.63	16.27	62.50	44.24	8.74	0.00	0.00	YES	NO
Ehrenberg	1,233	3.39	8.05	17.24	100.00	13.38	8.60	0.00	0.00	NO	NO
Parker	7,549	3.12	6.33	19.23	41.09	44.99	17.25	0.93	0.40	YES	NO
Poston	716	1.45	5.41	22.73	0.00	93.99	2.09	0.00	0.00	YES	NO
Quartzite	1,286	3.06	15.79	23.68	100.00	2.57	77.06	0.00	0.00	NO	NO
Salome	745	0.00	0.00	0.00	33.33	14.23	19.87	0.00	0.00	NO	NO
Wenden	575	4.27	3.64	10.91	0.00	19.65	7.30	0.00	0.00	NO	NO
MOHAVE	55,865	5.57	6.21	16.52	11.22	6.93	15.27	0.72	0.21		
Bullhead City	5,183	3.89	6.88	19.14	16.50	3.01	25.26	1.93	0.19	NO	NO
Chloride	206	6.85	0.00	11.11	100.00	0.00	27.67	0.00	0.00	NO	NO
Dolan Springs	695	5.01	3.57	19.73	100.00	2.30	47.91	0.00	1.44	NO	NO
Kingman	18,514	4.57	6.59	19.81	34.87	7.87	23.21	0.65	0.16	NO	YES
Lake Havasu City	17,439	3.05	6.34	11.45	7.30	3.47	18.83	0.86	0.17	NO	NO
Littlefield	78	8.15	0.00	0.00	0.00	12.82	16.67	0.00	0.00	NO	NO
Mohave Valley	2,678	1.64	6.67	22.97	86.26	9.41	28.04	0.00	0.00	NO	NO
Oatman	237	5.38	16.67	0.00	0.00	8.44	18.57	0.00	0.00	NO	NO
Riviera	6,328	2.75	6.90	16.42	47.41	5.56	29.79	0.32	0.47	NO	NO
Temple Bar Marina	81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NO	NO
Topock	536	4.57	0.00	3.03	0.00	0.93	29.29	1.87	0.00	NO	NO
Wikieup	271	3.75	0.00	16.00	0.00	0.00	29.89	0.00	0.00	NO	NO
Yucca	196	7.02	7.69	30.61	13.89	35.71	19.90	0.00	0.00	NO	NO
Ft. Mohave Indian Reservation	0	0.00	0.00	11.11	NA	NA	NA	NA	NA		
Kaibab Indian Reservation	1,482	2.42	4.18	14.16	0.00	0.00	7.15	0.00	0.00	NO	YES
Hualupi & Peach Springs I.R.	1,002	9.79	5.84	11.69	0.00	81.64	3.79	1.00	1.00	NO	NO
Hualupi & Valentine I.R.	53	0.00	5.00	14.29	100.00	52.83	0.00	0.00	0.00	NO	YES
NAVAJO	67,629	6.70	5.71	17.31	29.66	55.53	6.01	0.33	0.28		
Clay Springs	318	2.38	0.00	10.71	14.29	7.55	8.18	0.00	0.00	NO	NO
Heber	941	3.93	5.94	14.71	46.94	2.13	8.50	0.00	0.00	NO	NO
Holbrook	6,663	3.31	6.09	17.05	78.49	42.58	8.76	0.30	0.45	NO	NO
Joseph City	1,647	3.02	3.82	29.75	90.16	2.79	5.77	0.00	0.00	NO	NO
Lakeside	3,662	4.00	5.52	13.19	21.13	6.85	14.91	2.46	1.64	NO	NO
Overgaard	549	6.05	9.30	6.98	68.75	8.56	11.11	1.82	0.00	NO	NO
Petrified Forest National Park	63	0.00	0.00	33.33	0.00	0.00	0.00	0.00	0.00	NO	NO
Pinedale	140	4.93	0.00	3.57	0.00	0.00	18.57	28.57	0.00	NO	NO
Pinetop	2,209	4.22	6.82	9.09	44.44	6.25	11.59	0.00	0.91	NO	NO
Snowflake	4,303	3.53	3.93	11.62	43.52	15.20	5.76	0.00	0.00	NO	NO
Sun Valley	204	4.84	21.43	14.29	100.00	3.92	33.33	0.00	0.00	NO	NO
Taylor	2,023	5.21	7.22	9.89	63.64	4.35	5.54	0.00	0.00	NO	NO
Woodruff	201	1.18	0.00	0.00	0.00	5.47	0.00	0.00	0.00	NO	NO
Ft. Apache Indian Reservation	13,315	5.63	7.04	21.37	22.06	56.52	8.28	1.05	0.38	NO	YES
Hopi Indian Reservation	6,845	5.94	5.35	18.73	48.35	97.47	13.75	1.02	0.58	NO	YES
Navajo Indian Reservation	26,367	3.30	5.21	17.08	84.14	79.52	8.83	0.80	0.23	NO	YES

AREA / DESCRIPTION	POPULATION	HEALTH STATUS			SOCIODEMOGRAPHICS			HEALTH CARE PROVIDERS		SPECIAL NEEDS	
		AGE ADJUSTED DEATH	% LOW WEIGHT BIRTHS	% TEEN BIRTHS	% BELOW POVERTY	% BLACK, INDIAN, HISPANIC	% 65 YEARS AND OLDER	M.D./D.O. PER THOUSAND	N.P./P.A. PER THOUSAND	SEASONAL MIGRANT WORKERS	INDIAN RESERVATIONS
PINAL	90,918	6.74	6.41	22.70	18.26	42.09	10.59	0.45	0.13		
85219	NA	0.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
85220	15,645	0.00	0.00	0.00	17.57	4.01	42.58	0.00	0.00	NO	NO
Apache Junction	0	0.00	10.37	16.32	NA	NA	NA	NA	NA	NA	NA
Arizona City	852	4.42	9.52	13.10	0.00	7.28	34.98	0.00	0.00	NO	NO
Casa Grande	20,206	4.67	8.87	20.89	25.83	36.40	13.40	0.99	0.25	YES	YES
Coolidge	9,184	4.81	10.53	27.04	45.04	37.16	15.56	0.44	0.33	YES	NO
Eloy	6,852	5.09	10.95	25.27	56.35	71.58	11.33	0.15	0.00	YES	NO
Florence	6,433	4.00	8.41	22.35	85.71	40.74	17.32	0.78	0.31	NO	NO
Kearny	3,781	4.95	5.93	20.55	0.00	31.55	7.04	0.53	0.00	NO	NO
Mammoth	2,349	3.72	13.28	21.16	9.62	66.62	11.03	0.00	0.00	NO	NO
Maricopa	2,853	6.07	11.20	26.04	11.93	49.32	6.31	0.00	0.00	NO	YES
Oracle	3,049	3.79	14.02	15.50	7.14	33.09	10.53	0.00	0.00	NO	NO
Picacho	781	5.72	10.47	24.42	100.00	65.94	3.46	0.00	0.00	NO	NO
Red Rock	103	19.36	12.50	18.75	100.00	13.59	6.80	0.00	0.00	NO	NO
San Manuel	5,700	4.69	6.69	13.79	14.52	36.51	3.61	0.53	0.00	NO	NO
Stanfield	1,952	5.17	9.32	31.65	35.00	67.93	11.68	0.00	0.00	YES	NO
Superior	4,600	5.86	9.92	22.34	25.62	71.43	12.98	0.00	0.00	NO	NO
Valley Farms	442	5.29	6.90	17.24	54.17	16.97	14.93	0.00	0.00	YES	NO
Gila River Indian Reservation	7,330	5.39	8.77	26.74	0.00	100.86	8.21	0.82	0.14	NO	YES
San Carlos Indian Reservation	3,025	1.73	10.95	19.57	10.84	54.25	10.68	0.00	0.00	NO	YES
SANTA CRUZ	20,459	5.61	5.57	12.55	18.12	75.34	9.37	0.64	0.24		
Elgin	399	6.48	4.35	0.00	0.00	6.52	19.55	0.00	0.00	NO	NO
Nogales	17,727	3.40	5.47	11.94	43.80	82.02	12.46	0.68	0.06	NO	NO
Patagonia	1,039	3.10	7.50	17.50	41.67	32.82	40.13	0.00	0.96	NO	NO
Sonoita	410	2.18	0.00	5.00	0.00	12.20	41.22	0.00	0.00	NO	NO
Tubac	2,355	3.54	7.48	16.51	33.06	37.37	15.58	0.42	0.42	NO	NO
YAVAPAI	68,145	6.68	6.18	14.20	59.81	7.98	19.63	0.79	0.23		
86320	608	0.00	0.00	0.00	0.00	12.99	16.78	0.00	0.00	NO	NO
Ashfork	673	10.19	5.32	19.15	55.00	28.53	8.32	0.00	0.00	NO	NO
Bagdad	2,703	7.95	4.15	20.99	92.31	15.80	6.66	0.00	1.11	NO	NO
Black Canyon	1,334	4.70	13.56	20.34	27.54	0.00	46.78	0.00	0.00	NO	NO
Castle Hot Springs	68	0.00	0.00	0.00	0.00	0.00	13.24	0.00	0.00	NO	NO
Chino Valley	3,099	6.73	5.26	12.98	26.75	5.23	12.84	0.00	0.00	NO	NO
Clarkdale	1,331	18.67	7.97	15.22	37.50	30.58	23.44	0.00	0.00	NO	NO
Congress	612	5.45	8.51	17.50	0.00	7.84	32.19	0.00	0.00	NO	NO
Cornville	1,429	4.89	3.97	23.81	24.32	1.68	23.86	0.70	0.00	NO	NO
Cottonwood	8,017	4.84	8.12	16.67	28.24	8.87	31.52	0.87	0.00	NO	NO
Dewey	1,047	3.99	5.26	10.53	0.00	3.72	24.55	0.96	0.00	NO	NO
Goodwin	1,532	0.00	0.00	100.00	22.41	1.44	22.45	0.00	0.00	NO	NO
Humboldt	437	6.05	5.26	31.58	0.00	3.43	44.85	0.00	0.00	NO	NO
Iron Springs	0	0.00	0.00	0.00	0.00	0.00	0.00			NO	NO
Jerome	470	3.72	0.00	4.17	38.46	16.38	22.34	0.00	4.26	NO	NO
Kirkland	314	6.54	6.67	40.00	0.00	0.00	53.82	0.00	0.00	NO	NO
Lake Montezuma	406	5.06	0.00	22.22	100.00	2.22	55.17	0.00	0.00	NO	NO
Mayer	1,615	5.06	10.08	12.40	40.63	6.44	38.33	0.00	1.24	NO	NO
Paulden	194	12.60	5.26	0.00	100.00	20.62	30.93	0.00	0.00	NO	NO

AREA		HEALTH STATUS			SOCIODEMOGRAPHICS			HEALTH CARE PROVIDERS		SPECIAL NEEDS	
DESCRIPTION	POPULATION	AGE ADJUSTED DEATH	% LOW WEIGHT BIRTHS	% TEEN BIRTHS	% BELOW POVERTY	% BLACK, INDIAN, HISPANIC	% 65 YEARS AND OLDER	M.D./D.O. PER THOUSAND	N.P./P.A. PER THOUSAND	SEASONAL MIGRANT WORKERS	INDIAN RESERVATIONS
Prescott	30,370	4.47	5.94	12.23	31.54	8.51	30.17	1.38	0.13	NO	NO
Rimrock	2,101	11.01	8.62	11.35	0.00	5.52	38.51	0.00	0.00	NO	NO
Skull Valley	413	3.62	11.11	15.69	0.00	0.00	20.82	0.00	0.00	NO	NO
Yarnell	660	5.92	0.00	12.90	100.00	3.33	83.64	1.52	0.00	NO	NO
Camp Verde Indian Reservation	4,388	4.04	5.79	17.68	33.68	4.65	27.55	0.46	1.14	NO	YES
YUMA	77,997	6.05	5.21	15.35	15.97	39.43	15.48	0.68	0.13		
85344	7,549	3.12	6.33	19.23	41.09	44.99	17.25	0.93	0.40	YES	NO
Gadsden	525	2.82	4.05	17.33	0.00	87.43	7.43	0.00	0.00	NO	NO
Roll	1,555	3.56	6.76	15.38	100.00	20.84	13.50	0.00	0.00	YES	NO
San Luis	3,045	3.04	4.18	7.89	58.33	96.39	2.36	0.00	0.00	NO	NO
Somerton	6,864	3.30	6.54	14.17	40.98	80.74	7.02	0.44	0.44	YES	YES
Tacna	287	5.91	3.03	5.88	0.00	18.47	18.82	0.00	0.00	YES	NO
Wellton	2,186	6.40	16.67	18.73	62.50	44.24	8.74	0.46	0.00	YES	YES
Yuma	63,425	3.89	7.47	15.32	54.84	31.49	17.12	0.77	0.11	YES	YES

All health status data, except for the U.S. is a 1981-1985 five year average calculated from Arizona vital record information.

All sociodemographic and population data is from the 1980 census.

Provider data is from the **Arizona Rural Health Provider Atlas** (1987) by Rena Gordon, Rural Health Office.

Seasonal and migrant farmworker data is from Robert Trotter's report, **Arizona Migrant and Seasonal Farmworker High Density Areas** (1987) sponsored by the Arizona Association of Community Health Centers, Inc.

Appendix B Community Names and Zip Codes

COUNTY/ COMMUNITY	ZIP CODE	Other Community Names
APACHE		
Alpine	85920	
Chambers	86502	Zuni Indian Reservation
Concho	85924	Hunt
		Hunt Valley
Eager	85925	
Greer	85927	
Navajo	86509	
Nutrioso	85932	
St. Johns	85936	Adamana
		Richville
		Salado
		Williams Crk. Natl. Fish
Sanders	86512	Witch Falls
Springerville	85938	
Vernon	85940	Floy
		Pinon
Ft. Apache IR	85930	Hawley Lake
(20000)		McNary
	85931	Forest Lake
	85901	Maverick
Navajo IR	85614	Teec Nos Pos
(10000)	86535	
	86544	
	86538	
	86507	
	86556	Tsaile
	86503	Chinle
	86511	
	86504	Ft. Defiance
	85615	Window Rock
	86505	Ganado
	86508	
	86506	Houck
COCHISE		
Benson	85602	Cascabel
Bisbee	85603	Bakerville
		Don Luis
		Lowell
		San Jose
		South Bisbee
		Tin Town
		Warren
Bowie	85605	
Cochise	85606	
Douglas	85607	Double Adobe
Dragoon	85609	Johnson
		Russelville
Elfrida	85610	Apache
		Bernardino
		Chiricahua
		Courtland
		Gleason
		Guadalupe Canyon
		Silver Creek
		Webb
Ft. Huachuca	85613	
Hereford	85615	Coronado Natl. Forest
		Miracle Valley
		Nicksville
		Palominas
		Parker Canyon Lake
		Sunnyside
Huachuca City	85616	Fairbank
McNeal	85617	
Naco	85620	Bisbee Junction
Pearce	85625	Kansas Settlement
		Light
		Sun Sites
		Sunizona
Pirtleville	85626	Paul Spur
Pomerene	85627	
St. David	85630	Curtis
San Simon	85632	Cave Creek
		Hilltop
		Paradise
		Portal
Sierra Vista	85635	Charleston
		Fry
		Garden Canyon
Tombstone	85638	
Willcox	85643	Dos Cabezas
		Mascot
		Stark
COCONINO		
Bellemont	86015	Baderville
Flagstaff	86001	Doney Park
		Gray Mountain
		Hanks
		Kachina Village
		Meteor City
		Meteor Crater
		Moqui
		Mountainaire
		Pine Valley Trlr. Park
		Rimmy Jim's
		Two Gun Town
		Two Guns
		Wauneta Trdng. Post/Hanks
		Winona
		Wupatki
Fredonia	86022	Castle Canyon
		Jacob Lake
		Kaibab Forest
Grand Canyon	86023	Tent City
		Tusayan
Happy Jack	86024	Blue Ridge Ranger Station
Marble Canyon	86036	Lees Canyon
Mormon Lake	86038	
Munds Park	86017	
North Rim	86052	Kaibab
Parks	86018	Fairbank
Sedona	86336	
Williams	86046	Ash Fork
		Kaibab Estates
		Rose Well
		Seligman
Havasupai IR	86435	Supai
Hopi IR	86044	Cow Springs
		Dinnebito
		Elephant's Feet
		Howell Mesa
		Kerley Trading Post
		Red Lake - Tonalea
		Tolani Lakes
		Tonalea
Hualapai IR	86434	Dinosaur City
		Grand Canyon Caverns
Navajo IR	86040	Page (not on res.)
(30000)	86053	Kaibito
	86045	Tuba City
	86020	
	86035	
GILA		
Claypool	85532	Inspiration
Globe	85501	Central Heights
		Little Acres
		Midland City
Hayden	85235	Christmas
		Hayden Junction
		Dripping Spring
Miami	85539	
Payson	85541	Cane Springs
		Christopher Creek
		Dealer's Choice
		Kohl's Ranch
		Star Valley
		Ft. Apache IR
Pine	85544	Fossil Creek
		Strawberry
Roosevelt	85545	Tidwell Ranch
		Wheatfields
Tonto Basin	85553	Gisela
		Jake's Corner
		Punkin Center
		Rye
Winkelman	85292	
Young	85554	
Ft. Apache IR	85550	Amos Wash
(40000)		Canyon Day
		Carrizo
		Cedar Creek
		Cibecue - Gila
		Gric
		Lower Cibecue
		Warrior Canyon
San Carlos IR	85550	Coolidge Dam
(40000)		Cutter
		San Carlos
		Seneca
	85542	Peridot

COUNTY/ COMMUNITY	ZIP CODE	Other Community Names
GRAHAM		
Central	85531	
Ft. Grant	85643	Aravaipa
		Bonita
		Klondyke
		Sunset
Ft. Thomas	85536	Ashurt
		Cork
		Eden
		Geronimo
		Indian Hot Springs
Pima	85543	Bryce
		Glenbar
		Graham
		Mathews
		Mathewsville
Safford	85546	Artesia
		Hubbard aka Kimball
		Little Hollywood
Solomon	85551	Lone Star Ranch
		San Jose
		Sanchez
Thatcher	85552	Little Tulsa
San Carlos IR	85550	
	85530	Bylas
		Calva
		San Carlos Lake
GREENLEE		
Beaverhead	85922	
Clifton	85533	Metcalf
Duncan	85534	Apple Grove
		Franklin
		Guthrie
		Sheldon
		York
Morenci	85540	Frisco
		Plantsite
LA PAZ		
Bouse	85325	
Cibola	85356	Alamo
		Color. River IR
		(Color. River Agency)
		Spring Valley
Ehrenberg	85334	
Parker	85344	Brenda
		Cenega Springs
		Havasu Springs Trlr. Park
		Hope
		Lakeside
		McVary
		Parker Dam
		Planet Ranch
		Vicksburg
Poston	85371	Mohave Tribal Cemetary
		Parker Valley
Quartzsite	85346	
Salome	85348	
Wenden	85357	

COUNTY/ COMMUNITY	ZIP CODE	Other Community Names
MOHAVE		
Bullhead City	86430	Aqua View
		Davis Dam
		Katherine Landing
		Lake Mohave Resort
		Mohave Mesa
Chloride	86431	Grasshopper Junction
Dolan Springs	86441	
Kingman	86401	Dinosaur Caverns
		Golden Valley
		Hackberry
		Hoover Dam
		Meadview
		Truxton
		Willow Beach
Lake Havasu City	86403	Havasu City
		Havasu Springs (Resort)
Littlefield	86432	Beaver Dam
Mohave Valley	86440	Willow Valley
Oatman	86433	
Riviera	86442	Colorado Riviera
		Holiday Highlands
		Holiday Shores
		River Bend
Temple Bar Marina	86443	Lake Mead City
Topock	86436	Bermuda City
		Golden Shores
Wikieup	85360	Big Sandy Route
Yucca	86438	
Ft. Mohave IR	86427	
Kaibab IR	86021	Cane Beds
		Colorado City
		Fredonia
		Kaibab
		Mt. Trumbull
		Parashont Canyon
		Rural Northern Mohave Co.
		Short Creek
		Tuweep
Hualapai/Peach Springs IR	86434	Peach Springs
Hualapai/Valentine IR	86437	Valentine
NAVAJO		
Clay Springs	85923	
Heber	85928	
Holbrook	86025	
Joseph City	86032	Saint Joseph
Lakeside	85929	
Overgaard	85933	
Petrified Forest National Park	86028	
Pinedale	85934	
Pinetop	85935	
Snowflake	85937	Snowflake Highlands
Sun Valley	86029	
Taylor	85939	Love Lake
		Shumway
		White Mountain Lake
Woodruff	85942	
Ft. Apache IR	85901	Show Low
(80000)	85911	Cibecue
	85926	White River
	85941	
	85943	
Hopi IR	86030	Hoteville
(60000)	86034	Keams Canyon
	86039	
	86042	
	86043	
Navajo IR	86031	
(70000)	86033	Kayenta
	86047	Winslow (not reserv.)
	86054	
	86510	
PINAL		
Apache Junction	85278	Palm Springs
		Sonora
Arizona City	85223	Eleven Mile Corner
		La Palma
		Randolph
		Papago IR
Coolidge	85228	
Eloy	85231	Friendly Corner
		Green Reservoir
		Toltec
		Toltec City
Florence	85232	Cactus Forest
Kearny	85237	Kelvin
		Ray
		Riverside
Mammoth	85618	Copper Creek
		Tiger
Maricopa	85239	El Centro
		Hidden Valley
		Mobile
		Maricopa IR
Oracle	85623	Catalina Rural Branch
		Falcon Ranch
		Ralcon Valley
		Oracle Junction
Picacho	85241	Picacho Peak
Red Rock	85245	Sasco
San Manual	85631	Arabaipa
		Dripping Springs
		Dudleyville
		Hayden - Pinal
		Hayden Junction
		Winkelman - Pinal
Stanfield	85272	Table Top
Superior	85273	Florence Junction
		Queen Valley
		Sutton Summit
Valley Farms	85247	Sacaton
San Carlos IR	85292	

COUNTY/ COMMUNITY	ZIP CODE	Other Community Names
SANTA CRUZ		
Elgin	85611	
Nogales	85621	Kino Springs
		Rio Rico
Patagonia	85624	Canelo
		Duquesne
		Harshaw
		Lochiel
		Mowry
		Washington Camp
Sonoita	85637	Madera Canyon
Tubac	85640	Amado
		Arivaca
		Calabasas
		California Gulch
		Carmen
		Lakewood
		Pena Blanca Lake
		Oro Blanco
		Ruby
		Tumacacori
YAVAPAI		
Ashfork	86337	Seligman
Bagdad	86321	
Black Canyon	85324	Rock Springs
		Squaw Valley
Castle Hot Springs	86343	II L Ranch
		Lake Pleasant
Chino Valley	86323	Williamson-2V Ranch
Clarkdale	86324	Aka Verde Canyon
		Carterville
		Sycamore Canyon
		Verde Valley School
Congress	85332	Bumble Bee
		Gold Bar Mine
		Octave
		Queen Valley
		Wagoner
		Walnut Grove
		Wickenburg - Yavapai
Cornville	86325	Page Spring
Cottonwood	86326	Bridgeport
		Clemencrau aka Verde
		Verde Verde
Dewey	86327	Cherry
		Childs
		Irvin
Goodwin	86312	Groom Creek
		Walker
Humboldt	86329	
Iron Springs	86330	
Jerome	86331	Perkinsville
Kirkland	86332	Hillside
		Minnehaha
		Wilhoit
		Yava
Lake Montezuma	86342	McGuireville
		Montezuma Lake
Mayer	86333	Cleater
		Cordes Junction
		Crown King
		Poland Junction
		Spring Valley
Paulden	86334	Drake
Prescott	86301	Granite Dells
		Ponderosa Pines
		Prescott Valley
		Whipple - Prescott
Rimrock	86335	Beaver Creek
		Oak Creek
		Sedona - Yavapai
		W. Sedona - Harmony Hill
Skull Valley	86338	
Yarnell	85362	Peeples Valley
		Stanton
Camp Verde IR	86322	Camp Verde
		Middle Verde
		Stoddard
YUMA		
Adobe Lake	85364	Chocolate Lake
		Chocolate Mountain
		Imperial Camp
		Martinez Lake
Gadsden	85336	
Roll	85347	Agua Caliente
		Aztec
		Children of Light Ranch
		Dateland
		Horn
		Hyder
San Luis	85349	
Somerton	85350	Cocopah IR
Tacna	85350	Cocopah IR
Wellton	85356	Yuma Proving Ground
Yuma	85364	Adobe Lake
		Blaisdell
		Chocolate Lake
		Chocolate Mountain
		Dome
		Imperial Camp
		Laguna
		Ligurta
		Marine Corps Air Station
		Martinez Lake
		Fort Yuma IR